January, 1956

The American School Board Journal

A PERIODICAL OF SCHOOL ADMINISTRATION

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Annual School Building Number

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You have never seen a chalkboard like SlatoSteel! Try to mark its flint-hard surface with a coin — the coin flakes off but the SlatoSteel surface is unharmed. In every test, SlatoSteel comes out best.

Permanence	With the strength of steel and toughness of porcelain it outlives even the building. hTe fired green finish can never fade or wear out.
Legibility	The vitreous enamel writing surface cuts regular chalk crayon into clean, sharp lines that stand out strong and clear.
Writeability	Automatic electrostatic spraying assures SlatoSteel a uniform matte surface with just the right "bite" for chalk.
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"Plus" Service	Magnetic letters, figures and symbols provide "touch and feel" learning and magnetic clips allow use as a posting surface.
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January
1956

VOL. 132 NO. 1

THE AMERICAN School Board Journal

A Periodical of School Administration

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DEPARTMENTS:

The *Dual* System of Johnson Automatic Temperature Control is the modern answer to the special comfort and economy requirements of today's schools. The specially planned system installed at William H. Holmes School* illustrates why:

COMFORT. Strategically located Johnson *Dual* Thermostats in every room insure ideal temperatures to satisfy the exact needs of the occupants, day and night. Convectors and the central heating and ventilating systems are under precision control at all times. For added comfort, air for ventilation is properly humidified before delivery. Special indoor-outdoor controllers anticipate the need for more or less heat in accordance with outdoor temperature. There is no overheating, no underheating. Comfort is uninterrupted!

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*William H. Holmes School, Mt. Vernon, New York. Emilio John Di Rienzo and Warren S. Holmes Company, architects; A. H. Karl & Bros., heating contractor; all of Mt. Vernon.

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TEMPERATURE AIR CONDITIONING

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"All Aboard"

Board Members as Educational Statesmen

EDWARD M. TUTTLE

All of the activity concerning public education which has been manifest during recent months has served to emphasize one fundamental truth of primary importance to the readers of the AMERICAN SCHOOL BOARD JOURNAL. This is the key position occupied by local boards of education in carrying forward the recommendations that are being made, and the vital necessity that individual board members shall possess the highest qualities of character and leadership. This is a responsibility of the first order. It is likewise a challenge of greatest opportunity for public service.

As has been said so many times in these columns, but never with such significance as at present writing, the service of board members and school boards depends upon a breadth of understanding far beyond the confines of the local community which they represent. Only as they have knowledge of the functioning of public education throughout the state and nation can they adapt policies most wisely to the needs of their own communities. And only as the local school systems are built up to the highest level of effectiveness can they contribute as they should to the total impact of public education upon the future welfare of America.

The Qualities of Statesmanship

The dictionary defines a statesman as a person "skilled in government and public affairs." But there are some persons so skilled whom we would hardly call statesmen. Other qualities enter into what most of us have in mind when we speak of statesmanship. Among these are a subordination of personal ambition to the public welfare, wise judgment, and sound discretion in the exercise of powers, true foresight conditioned by breadth of view, unusual ability in promoting effective cooperative relationships among all who must work together, and a genuine faith in the public as the sovereign authority in our representative democracy.

To the above we must add, in the field of educational statesmanship, an unqualified belief in a system of universal public education which shall provide opportunity for every child, youth, and adult in the nation — wherever he may live and whoever he may be — to attain the fullest development of his individual potentiality for worthy citizenship with all that this implies.

Belief in Public Education

We have to face the fact, unbelievable as it would seem, that there are some citizens of this great country, enjoying the full benefits of all the freedoms and opportunities that it offers, who do not believe in their hearts that every other citizen should have rights and privileges equal to their own. They think of lower and higher orders of society, always including themselves, of course, in the higher classification. They feel it would be dangerous to give every person all the education he can profitably absorb, and the kind of education best suited to his individual abilities and aptitudes. Least of all would they agree that such education for all should be provided at public expense — at their expense. Such people are living denials of the very democracy in which they partake.

It is vitally important to the general welfare that persons of the kind described above do *not* become members of public school boards of education. The presence upon a board of even one who does not subscribe wholeheartedly to the basic tenets inherent in the American system of universal public education is an anomaly. Worse than that, it is a handicap to united and effective action by the board in behalf of its total community.

Let us make certain, then, first of all, that members of school boards believe in public education without reservation and are ready to work unremittingly to defend and support it to the highest degree which their communities can be led to demand.

Devotion to the Public Interest

The first quality of statesmanship set forth above was the "subordination of personal ambition to the public welfare." This applies with unmistakable clearness to the educational statesman we seek as a school board member. He must represent impartially *all* the people of the community. His work as a board member must be performed without bias of any kind in favor of his own interest or the interest of any restricted group or segment of the population. Only when every member of a board of education approaches his task in this spirit can there be the harmony of discussion and the unity of action which are essential to the effective service to the total public.

The consideration just stated is the chief reason why the control of public education should be completely divorced from the partisanship usually connected with the administration of other governmental affairs — possibly excepting the judiciary. It is the basic argument for the nonpolitical selection of board members, and for the allocation to the board of complete freedom in the conduct and control of school affairs.

APPROACH

"Every tomorrow has two handles; we can take hold by the handle of anxiety, or by the handle of faith." — HENRY WARD BEECHER

Beecher implied that the quality of our lives depends in large measure on the way we approach each new day or new experience. If, in timidity and fear, we doubt our capacity to meet demands and responsibilities as they come to us, life becomes a torment of anxiety and frustration. But if we have faith in our ability to master the tasks that each day brings, provided we face them bravely and give them our best effort, then life becomes an adventure in growth and achievement. Someone has truly said, "To know how to meet the next hour with joy, with head erect, with courage singing in your heart, is to solve the deep mystery of eternity."

— *E. M. T.*

Sound Judgment and Discretion

The educational statesman is a person not subject to whims or the making of snap decisions. His mind is open on every question until the evidence is all in. He insists on facts — all the facts — and reaches his decisions on the basis of the facts, not on the basis of his own or anyone else's unsupported opinions or guesswork. He knows when to call upon experts for assistance and he carefully studies their recommendations. On the record, his decisions with regard to school policy prove to be sound.

Boards of education, as we all know, are created by the state and are responsible for carrying out such requirements concerning the public schools as are embodied in state law. Nevertheless they all enjoy, to a greater or lesser extent, wide discretionary powers with respect to the operation of their local schools. Were this not so, it would be impossible to adapt the educational program closely to the needs of the individual community, which we Americans insist is one of the greatest strengths in our decentralized system of control. This means that the board member, working with his fellow board members, carries a large measure of responsibility in his job of policy making and needs unusual qualities of good judgment in discharging that responsibility.

Foresight and Breadth of View

Of all the qualities which distinguish the statesman from the common man this one of breadth and balance is the rarest and of greatest importance. Most of us tend to be too narrow, too provincial in our outlook. Our beliefs and actions are chiefly conditioned by the little world around us. We are prone to be guided by the needs of the moment and to give little considered thought to the future. We tend to follow rigid patterns that we have fallen into. Our ability to adjust readily to change seems to be quite limited.

But education deals in futures. It is always looking ahead. It must be adapted to changing conditions and needs. Those who enjoy its benefits will be applying their added resourcefulness in time to come. It may be years before a determination can be made by themselves or anyone else as to how well their preparation fitted them for living and earning a living. Very often it will happen that they reach a point requiring further study, and the opportunity should be open to them. This idea is at the root of all adult education which is more and more becoming a part of our public school programs.

In every community there are men and women whose background is broader than that described above, men and women who are able to look ahead and to plan ahead. men and women who are flexible in their attitude toward change. Such people are needed on our boards of education. They qualify as educational statesmen.

Effective Working Relations

Boards of education are policy-making bodies. Properly functioning they do not administer the schools themselves. Their policies are put into operation by the school staff composed of the superintendent and his assistants, the teachers, and non-teaching workers of many kinds. This means that the board is dependent upon the competency and good will of its employees. It presupposes harmonious working relationships that the board consistently seeks to establish and maintain. The keys to effectiveness in these relationships are two-fold. First, the recognition of school personnel as human beings with the hopes and aspirations, doubts and fears common to us all. Second, the enlistment of school personnel participation in those phases of policy formulation and policy administration with which they are directly concerned.

Board members who are educational statesmen understand the importance of welding everyone in the school system into a smooth working team with a sense of loyalty to the administrator, the board, and the community.

Faith in the People

A board of education stands between the school and the community and has the responsibility of interpreting one to the other. It seeks to determine and then to carry out the wishes of the majority of the people with regard to their schools. It seeks equally to make certain that the people of the community understand what their schools are doing and the potential for increased service as needs arise and support is given.

Equal in importance to effective working relationships within the school system are the relationships between the school and the public. This is one of the most fertile fields for cultivation by the educational statesman and one that has too often been neglected. Unfortunately there are some school boards and school administrators who still argue that it is their job to run the schools without any "interference," and that the less the public knows about school affairs the better. The argument is unsound, and school authorities following this pattern are heading for certain trouble. For the schools belong to the public which pays the bills, supplies the raw materials, and absorbs the product into the life of the community.

Thus it is that more and more boards with a statesmanlike attitude toward their responsibilities are operating on the assumption that the community should be fully informed at all times concerning its schools. More boards believe that, in proportion as the people understand school problems, their advice, assistance, and support will strengthen the hands of the board. So board meetings are open to the public and to the press, and committees of citizens are actively involved in studying school conditions and in offering recommendations for consideration by the board.

The country over, we are making progress rapidly along these lines and the local, state, and White House Conferences held during 1955 have all served to stimulate this shared interest in the schools.

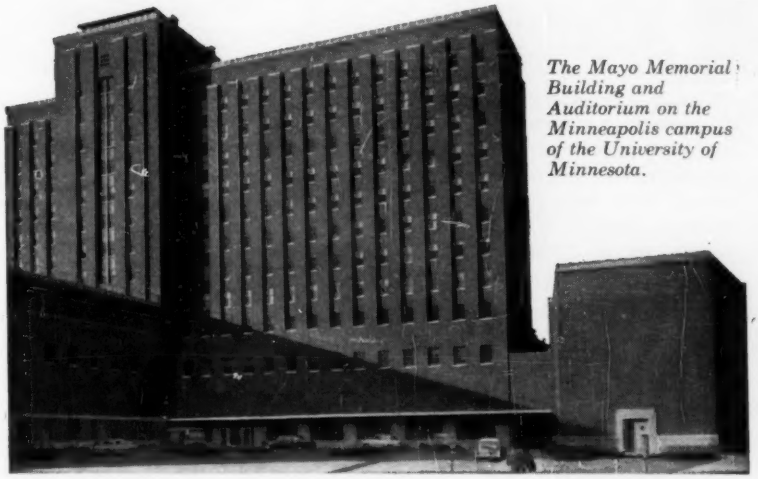
State and National Leadership

As the collective voice of school boards becomes a more potent factor in educational progress in this country, there is increasing need that board members possessing the qualities and attitudes pre-

(Concluded on page 8)

Both the balcony and main floor of the auditorium are completely furnished with Heywood-Wakefield TC 700 "Encore" chairs.

Beauty, comfort and durability for the new Mayo Memorial Auditorium with Heywood ENCORE Chairs



The Mayo Memorial Building and Auditorium on the Minneapolis campus of the University of Minnesota.

Designed particularly for the new auditorium at the University of Minnesota, this special adaptation of the Heywood "Encore" auditorium chair has attractive, solid mahogany end standards and South American mahogany veneer backs. The deep coil spring cushions and padded backs provide armchair comfort, while Heywood's extra quality construction assures long, trouble-free service. Architects for the Mayo Memorial Auditorium were C. H. Johnston & Associates of St. Paul. Installation of Heywood seating was supervised by Farnham Stationery & School Supply Company, Heywood-Wakefield distributors in Minneapolis.

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A complete description of Heywood auditorium seating is contained in the Heywood-Wakefield School Furniture Catalog. For your free copy write: Heywood-Wakefield Company, School Furniture Division, Menominee, Michigan or Gardner, Massachusetts.

HEYWOOD-WAKEFIELD
EST. 1826

EDUCATIONAL STATESMEN

(Concluded from page 6)

sented in this article shall occupy the positions of leadership.

Associations of school boards in nearly every state are rapidly growing in strength and in service not only to local boards but to the development of statewide educational programs. In the same spirit the National School Boards Association is serving the state associations and is contributing to educational advancement in the nation as a whole.

The leaders of these associations need in conspicuous measure to exhibit that belief in public education, that devotion to the public interest, that soundness of judgment, that breadth of view, that spirit of co-operation, and that faith in the people which mark the true educational statesman.

National Convention

Have plans been made by your board of education to send at least one representative to the 1956 Convention of the National School Boards Association? As previously announced, it will be held on February 16, 17, 18 in the Chalfonte-Haddon Hall Hotel, Atlantic City, N. J. The theme of the Convention will be "School Boards Look Ahead."

Your reservation should be sent in on the blank that can be secured from the executive secretary of your state school boards association. This should be done without delay and not later than January 15.

The program will be centered around a discussion of the applications to be made in local communities of the suggestions and challenges growing out of the numerous educational conferences held during 1955 which culminated in the White House Conference on Education a month ago.

The officers and directors of the N.S.B.A. look forward to greeting you in Atlantic City.

COMING CONVENTIONS

Jan. 11–12. **Tennessee School Boards Association,** Hotel Andrew Jackson, Nashville, Tenn. President: E. M. Reed, % Tennessee Eastman Corp., Kingsport, Tenn. Exhibits. 400.

Jan. 16–17. **Nebraska State Boards Association,** New Senior High School Building, Grand Island, Neb. President: Robert E. Cape, Dalton, Neb. Secretary and Exhibit Chairman: James C. Porterfield, P.O. Box 1233, Omaha, Neb.

Jan. 31, Feb. 1–2. **Minnesota School Boards Association,** Lowry Hotel, St. Paul, Minn. President: Mrs. Leonard Rollins, Weaver, Minn. Secretary: W. A. Wettergren, Box 367, St. Paul, Minn. Exhibits. 3000.

Feb. 5–7. **Louisiana School Boards Association,** Roosevelt Hotel, New Orleans, La. President: Loney J. Autin, 700 Hancock St., Gretna, La. Secretary: Fred G. Thatcher, Box 8986, University Station, Baton Rouge, La. 500.

Feb. 16–18. **National School Boards Association,** Chalfonte Hotel, Atlantic City, N. J. President: O. H. Robert, Jr., Citizens National Bank Bldg., Evansville 8, Ind. Secretary: Edward M. Tuttle, 450 E. Ohio St., Chicago 11, Ill. Exhibit Chairman: Dr. Marian A. McGhehey, Indiana University, Bloomington, Ind. 1500.

Mar. 15–17. **Idaho School Trustees Association,** University of Idaho, Moscow, Idaho. President: Mrs. John Walters, 1711 N. 21st St., Boise, Idaho. Secretary: J. C. Eddy, 112 N. Garden, Boise, Idaho. 200.

Mar. 24–25. **Wisconsin Association of School Boards,** Schroeder Hotel, Milwaukee, Wis. President: William Milne, Philips, Wis. Secretary: George Tipler, Route 5, Oshkosh, Wis. Exhibit Chairman: Paul C. Baumann, 814 S. 37th St., Milwaukee, Wis. 600–800.

POWERS

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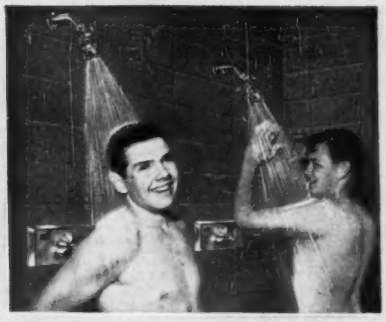
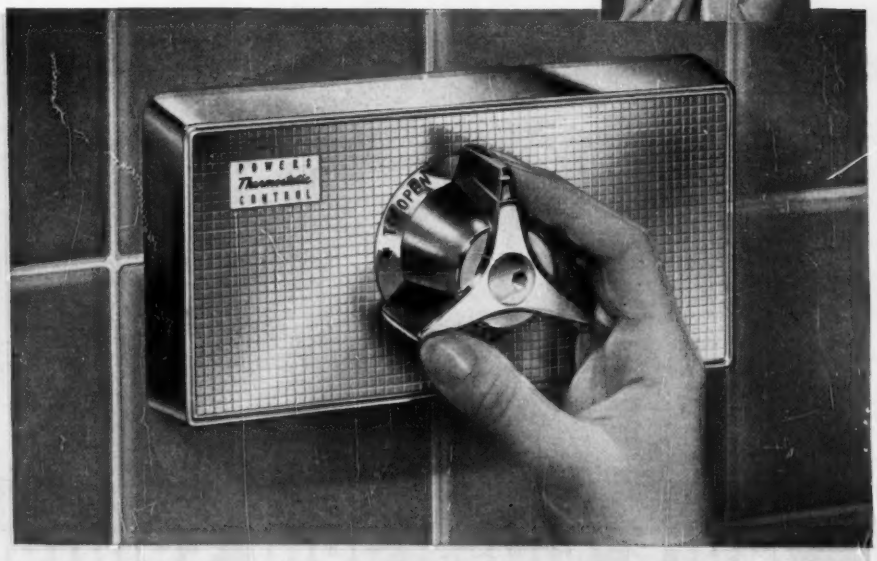
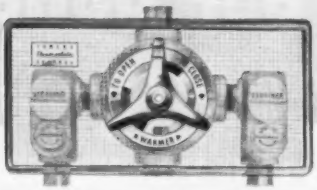


Because HYDROGUARD has a built-in *shut-off valve* none is required between it and the shower head.

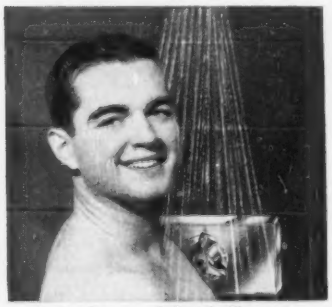
For multiple shower installations or individual shower stall HYDROGUARD is often used with shower heads having built-in *volume control.*



HYDROGUARD introduces an advanced style trend in shower control. It provides greater convenience for bathers and neater appearance. It is available for concealed piping (above) and for exposed piping.



New Triple Duty STRAINER-CHECK-STOPS concealed behind the HYDROGUARD cover, simplify piping and tile work. Walls are unmarred by protruding knobs or valve handles. With only one dial to turn instead of the usual 2 to 4 valves, there is no confusion on the part of the bather.



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Powers HYDROGUARD Is Thermostatic. It is the finest shower control money can buy. It always maintains the shower temperature wherever the bather sets it . . . regardless of *temperature* or *pressure changes* in water supply.

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ool.... Blackfoot, Idaho

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Longfellow School Addition.... Minot, North Dakota
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School No. 37.... Indianapolis, Indiana
Coitsville Sch... ungstown, Ohio
Slinger C... Wisconsin
Northw... chigan
Mo... Pa.
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East... consin
Trilby Sc... edo, Ohio
St. Clair Ele... ittsburgh, Pa.
Suring High School.... Suring, Wisconsin
Venice School Addition.... Venice, Illinois
Draper School.... Schenectady, New York
Taylor School.... Ogden, Utah
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Schoolcraft High School.... Schoolcraft, Michigan
North Grade School.... Mt. Carmel, Illinois
East Richmond School.. Richmond Heights, Missouri
St. Lawrence School.... Indianapolis, Indiana
Addition to Public School.... Cyrus, Minnesota
High School.... Gettysburg, Pa.
Suring High School.... Suring, Wisconsin
Westview Elementary School.... Spokane, Washington
Jackson Memorial High School.... Massillon, Ohio
Redford Union Elementary School, Redford, Michigan
Gibson City High School.... Gibson City, Illinois
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Senior High School.... Geneseo, Ohio
Diamond Lake Public School... Mundelein, Illinois
Elementary School.... Alsace, Pa.
Lincoln School.... Sheybogan, Wisconsin
Addition to School Building.... Brewster, Minnesota
Mason Local School Addition.... Mason, Ohio
Vogal School Addition.... Evansville, Indiana
Taft Heights Elementary School.... Taft, California
West Elementary School.... Whitewater, Wisconsin
New High School.... Old Archar, Maine
Rockdale Primary School.... Cincinnati, Ohio
New Elementary School.... Lock Haven, Pa.
Cherry School.... Cherry, Minnesota
Coldwater High School.... Coldwater, Michigan
Pine Lake Grade School.... Rheinlander, Wisconsin
Colerian Township School.... Cincinnati, Ohio
Highland Park School.... Saginaw, Michigan
arkman School.... Chicago, Illinois
w Market Elementary School.... New Market, Pa.
ringmeyer School.... Cincinnati, Ohio
inville High School.... Plainville, Connecticut
en Street School.... Somerville, Massachusetts
rcy Grade School.... Marcy, Wisconsin
npfield High School.... Landsville, Pa.
ckmann Elementary School.... Salt Lake City, Utah
ss Corners Grade School.. Tess Corners, Wisconsin
edford Avenue School.... Middletown, New York
Bastrop High School.... Bastrop, Louisiana
ongstreet School.... Saginaw, Michigan
Lowell School Addition.... Duluth, Minnesota
Hillcrest Grade School.... Brookins, South Dakota
Nobel Prentiss School.... Kansas City, Missouri
Franklin School.... Kent, Ohio
Garfield School.... Spokane, Washington
South West School.... Harvey, Illinois
Monroe Washington School.... Pierston, Indiana
Cambrian School No. 2.... Campbell, California
Thurmont Elementary School.... Thurmont, Maryland
Elementary School.... Kenyon, Minnesota
Canyon Rim School No. 2.... Salt Lake City, Utah
Colerian Township School.... Cincinnati, Ohio
Grade School.... Mineralpt, Wisconsin
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Grade School.... Mineralpt, Wisconsin
Springfield Senior High School.... Akron, Ohio
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Ogden Grade School.... Ogden, Illinois
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Kewaunee Grade School.... Kewaunee, Wisconsin
Galena Township School.... La Porte, Indiana
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New Junior High School.... Davenport, Iowa
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New Elementary School.... Huntington, Pa.
Hines School Addition.... Peoria, Illinois
Pomeroy Grade School.... Pomeroy, Washington

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Preble School.... Preble, Wiscons
Hoover Elementary School.... Tulsa, Oklahon
Pioneer School.... Bismarck, North Dako
Wellington School.... Roseville, Michiga
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Grade School.... Waterford, Wiscons
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St. Francis Xavier School.... Petoskey, Michig
New Junior High School.... Davenport, Io
Fairview School.... Fairview, Monta
Picadome School.... Lexington, Kentuc
Kewanee High School.... Kewanee, Illino
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Brandywine School.... Niles, Michig
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C. A. Arthur School.... Oklahoma City, Oklaho
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Bristol School.... Webster Grove, Misso
High School.... Albion, India
Station Avenue School.... Ashtabula, O
St. Ursula Elementary School.... Allison, I
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Senior High School.... Geneseo, O
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Linn Grove School.... Linn Grove, Ic
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Nantucket High School.. Nantucket, Massachuse
Wyoming Park High School.. Wyoming Park, Michi
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Old Fort School.... Old Fort, O
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More Classroom Comfort per Dollar

Here are schools that got it, tailored to their exact climate and structural needs, during 1955 . . . when they installed Herman Nelson Unit Ventilators.

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.... Michigan City, Indiana
ool.... Holland, New York
ol.... Kansas City, Kansas
.... Montivideo, Minnesota
.... Fon du Lac, Wisconsin
ool.... Fairmont, Illinois
.... Pittsburgh, Pa.
chool.... Lincoln, Rhode Island
ool.... Marysville, Washington
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.... Richfield, Minnesota
.... Fort Knox, Kentucky
on.... Walled Lake, Michigan
.... Morgantown, Pa.
Addition.... Syracuse, New York
.... Oberlin, Ohio
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chool.... Fowlerville, Michigan
.... Miller, South Dakota
School.... Edina, Minnesota
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.... Wautoma, Wisconsin
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.... Clara City, Minnesota
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.... Troy, Pa.
.... Grand Island, Nebraska
on.... Westchester, Illinois

Barrington High School.... Barrington, Illinois
Junior High School.... Washington, D. C.
Junior High School No. 167.... New York, New York
Thirty-third Street School.... Ogden, Utah
Pius XI High School.... Milwaukee, Wisconsin
East Junior High School.... Warren, Ohio
Willow Run High School.... Willow Run, Michigan
Mountain Iron School.... Mountain Iron, Minnesota
Brookfield Elementary School, Brookfield, Wisconsin
Montgomery Elementary School.... Ashland, Ohio
Public School Addition.... Wasena, Minnesota
Wood Township School.... Borden, Indiana
New School Addition.... Mt. Carroll, Illinois
Ardmore Site Elementary School.. St. Clair, Michigan
Lightner Elementary School.... York County, Pa.
Tess Corners Grade School.. Tess Corners, Wisconsin
Valley Junior High School.. Grand Fork, North Dakota
Bay Village High School Addition.. Bay Village, Ohio
West Biddle Street School.... West Chester, Pa.
Warren Elementary School.... Warren Twp, Michigan
Gifford School.... Gifford, Illinois
Livingston High School.... Livingston, New Jersey
Tess Corners Grade School.. Tess Corners, Wisconsin
North Site School.... Howell, Michigan
Springmeyer School.... Cincinnati, Ohio
New Albany Junior High School.. New Albany, Indiana
Thomson Grade School.... Thomson, Illinois
29 Palms Elementary School... 29 Palms, California
Affton High School.... Affton, Missouri
Haverford School.... Haverford, Pa.
McLean High School.... Arlington, Virginia
Milltown High School.... Milltown, Indiana
Budd Avenue Elementary School.... Ashland, Ohio
Elementary School.... Belgium, Wisconsin
Field Grade School.... North Olmstead, Ohio
Maxfield Elementary School.... St. Paul, Minnesota
Keokuk Senior High School.... Keokuk, Iowa
Community Grade School.... York County, Pa.
Venice School Addition.... Venice, Illinois
Vienna White Elementary School.. Vienna, Virginia
Crivitz High School.... Crivitz, Wisconsin
Holy Name Parrish School.. Minneapolis, Minnesota
S. E. Harvey School.... Harvey, Illinois
Dartmouth High School.. Dartmouth, Massachusetts
Public School.... Mandan, North Dakota
Target Range School.... Missoula, Montana
Bristol School.... Webster Grove, Missouri

New Elementary School.... Huntington, Pa.
Jones School.... Cicero, Illinois
Oak Street School.... Flint, Michigan
New Elementary School.... Bay Village, Ohio
Howard Township School.... Duck Creek, Wisconsin
Valley High School.... Orderville, Utah
Boyd Elementary School.... Ohara Township, Pa.
Highcrest School.... Silmette, Illinois
Minneapolis Elementary School, Excelsior, Minnesota
Griffith High School.... Griffith, Indiana
New Senior High School.... Kellogg, Idaho
Frontier Central School.... Hamburg, New York
North West School.... Harvey, Illinois
High School Addition.... Billian, Wisconsin
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Elementary School.... Edgewood, Pa.
Garnett Elementary School.... Fairview Place, Ohio
Lakeview High School.... St. Clair, Michigan
South Grade School.... Mt. Carmel, Illinois
Deanza School.... El Sabrant, California
Meacham Street School.. Somerville, Massachusetts
Scott Township School.... Evansville, Indiana
Draper School.... Schenectady, New York
Elementary School.... Alsace, Pa.
High School.... Coleman, Wisconsin
Greenhills Elementary School.... Greenhill, Ohio
Johnson School.... Benton Harbor, Michigan
Dundee High School.... Carpenters, Illinois
West Liberty School.... West Liberty, Iowa
Horton Watkins School.... Ladue, Missouri
Magna Elementary School.... Magna, Utah
Richland Township School.... Richland, Pa.
Pomeroy Grade School.... Pomeroy, Washington
Mimisila Elementary School.... Manchester, Ohio
Komarck School.... Riverside, Illinois
Elementary School Ward No. 4.. Big Rapids, Michigan
Addition Elementary School.... Rushmore, Minnesota
Bear River High School.... Box Elder, Utah
Norview School.... Norview, Virginia
Steel Lake Elementary School.. Redona, Washington
Affton High School.... Affton, Missouri
Windsor Grade School.... Windsor, Wisconsin
High School.... Gettysburg, Pa.
Verona Grade School.... Verona, Illinois
Maryville Elementary School.... Rockville, Maryland
High School Addition.... New Holstein, Wisconsin
Ethel Boston School.... St. Louis Park, Minnesota

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Forestview School.... Bay Village,
Remus Elementary School.... Remus, Mich
Garfield School.... Moline, Illi
Scott Township School.... Evansville, Ind
New Valley School.... Maplewood, Miss
Maxwell School.... Maxwell,
James Lansey School.... Fall River, Massachus
La Maille School.... La Maille, Illi
Blanche Stoddard School.... Iowa Falls,
Wheatland Center School.. New Munster, Wisco
West Deer Township High School.... Cheswick
Metamora School Addition.... Metamora,
East Hill Elementary School.... Kent, Washin
Glenridge Junior High School.... Landover, Mary
Mount Carmel High School.... Auburn, New
Orem Senior High School.... Orem,
Community Grade School.... Wheeling, Ill
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Green Meadow School.... Rensselaer, New
High School Addition.... New Harmony, Ind
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Grade School.... Waterford, Wisc
Elementary School.... Oakmont
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Forrest Avenue School.... Ypsilanti, Mich
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Lincoln School.... Elmhurst, Ill
Holy Name Parish School.... Minneapolis, Minne
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Elementary School Building.... Gettysburg
High School.... Marblehead, Massachu
West Elementary School.... Grondville, Mich
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Edison School.... Eugene, Or
Hawthorne Elementary School.... Tulsa, Oklal
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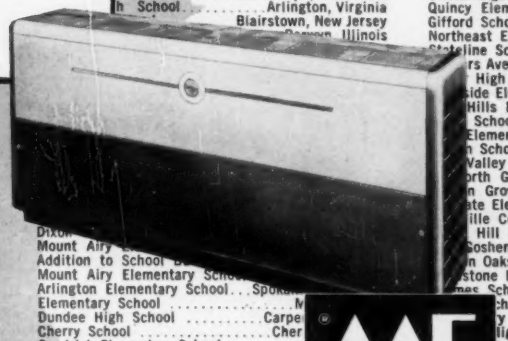
More Than 150,000 Classroom Installations



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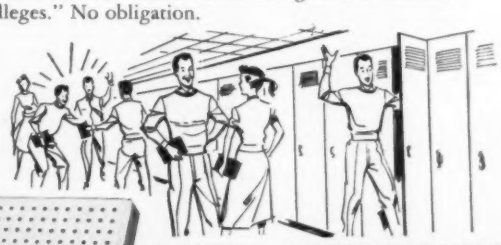
Light, Beauty and **QUIET** attend High School

Lessons come easier where quiet prevails. That's why America's schools with ceiling installations of Acousti-Celotex materials are discovering new effectiveness in teaching and study. These sound-absorbing products check disturbing chatter and clatter in classrooms, study halls, corridors, libraries, gyms, cafeterias, auditoriums. Both students and teachers benefit greatly from the resulting *quiet comfort.*

Functional and Beautiful—Acousti-Celotex Tile provides the low-cost, efficient answer to the noise problem. In the installation illustrated, sound and light conditioning are integrated in one attractive ceiling on a Celotex suspension system; easy access is permitted to above-ceiling area for maintenance of utilities. The tile has excellent sound-absorption value, is quickly installed, needs no special maintenance. The Cane Fiber Tile may be painted *repeatedly* as *well* as washed, without loss of sound-absorbing properties.

An Acousti-Celotex Exclusive—This is most significant: You do not pay one cent for the most important part of Acousti-Celotex Sound Conditioning . . . 30 years' sound engineering experience—in acoustical installations of all types, under all conditions.

Mail Coupon Now for a Sound Conditioning Survey Chart that will bring you a *free analysis* of the noise and acoustical problems in your school plant plus a free factual booklet, "Sound Conditioning for Schools and Colleges." No obligation.



*REG U. S. PAT. OFF.

Corridor of Melvindale High School, Melvindale, Michigan, showing ceiling of Acousti-Celotex Lumicel* Translucent Panels (Ripple Pattern) and Perforated Cane Fiber Tile. Architect: Eberle M. Smith Associates, Inc. Acousti-Celotex Contractor: R. E. Leggette Co., Dearborn, Mich.

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Without cost or obligation, please send me the Acousti-Celotex Sound Conditioning Survey Chart and your booklet, "Sound Conditioning for Schools and Colleges."

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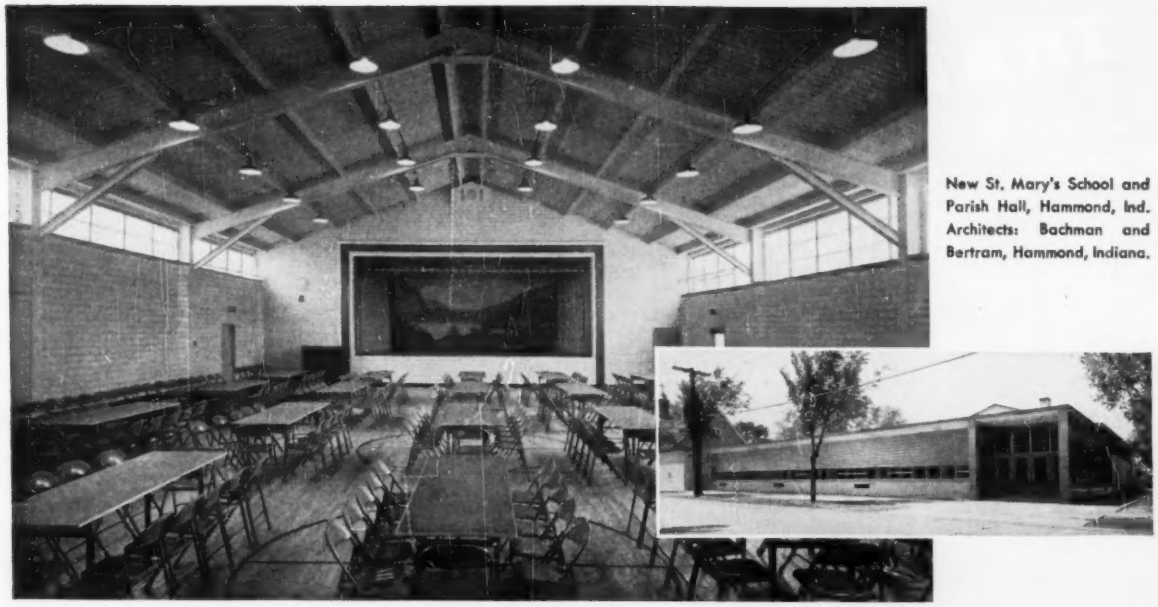
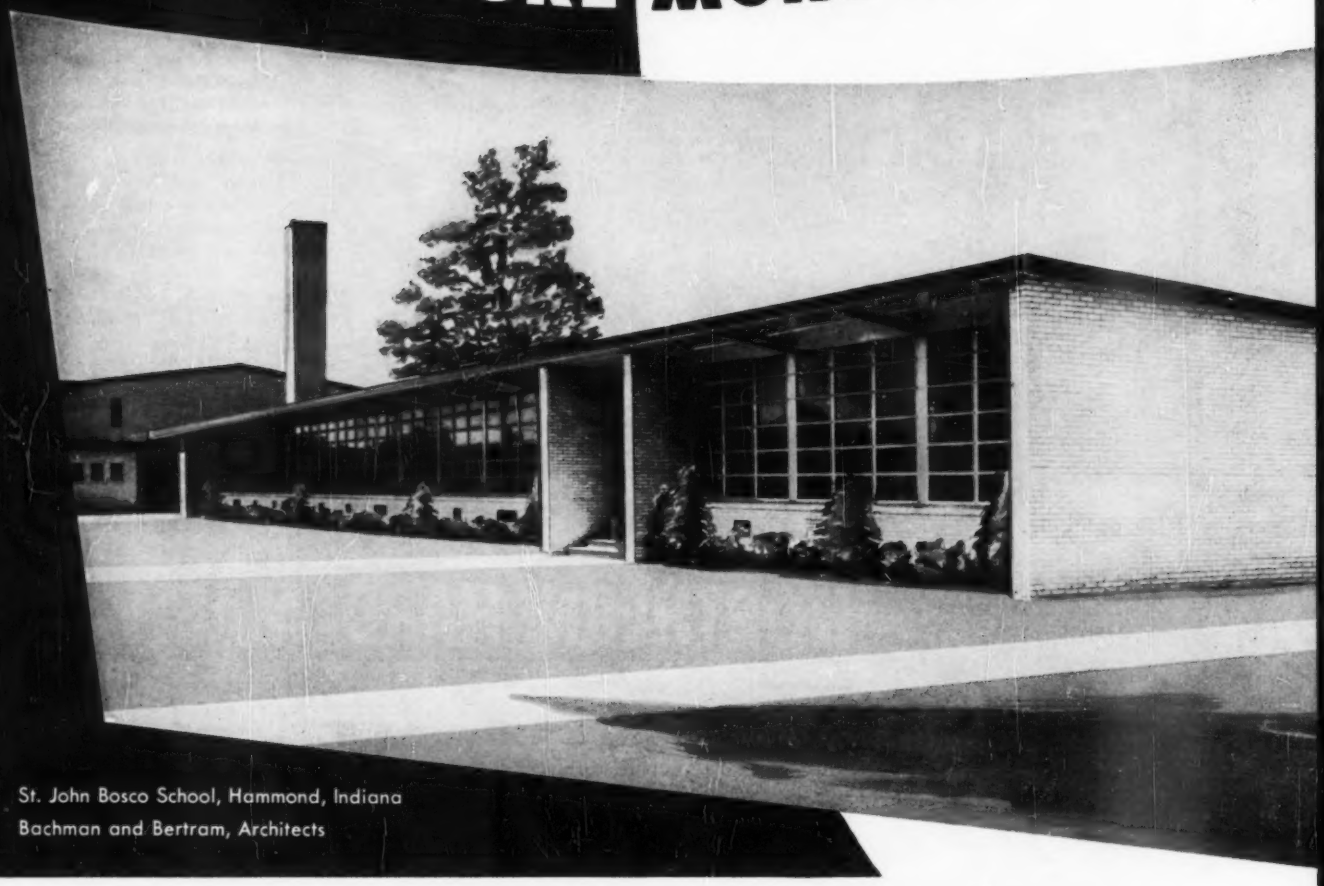


New St. Mary's School and Parish Hall, Hammond, Ind. Architects: Bachman and Bertram, Hammond, Indiana.

FOR THE SAFEST, QUICKEST, EASIEST OPENING SCHOOL WINDOWS

THAT ASSURE MORE COMFORT.



St. John Bosco School, Hammond, Indiana
Bachman and Bertram, Architects

LUDMAN *Corporation* invited

with 26 other Outstanding American Manufacturers of School Building Products and Equipment

to participate in

SCHOOLROOM PROGRESS • U. S. A.

the traveling exhibition sponsored by the Henry Ford Museum and Greenfield Village and The Encyclopedia Americana

"Schoolroom Progress U.S.A." is a traveling educational exhibition touring 250 major cities which will give school officials an opportunity to see the changes in schoolroom construction over the years. Featured are replicas of schoolrooms of 1840 and 1890 contrasted with the ideal classroom of today and tomorrow. Ludman's Auto-Lok Windows, an integral part of today's new schools, are displayed in that part of the exhibit which reveals the latest in classroom architecture. Ludman is proud to participate in a project which represents a major contribution to educational thinking. Ludman invites you to see the exhibit when it comes to your city.

SCHOOLROOM PROGRESS · U.S.A.

American Association of School Administrators N.E.A. Convention
February 18–23
Atlantic City — Booth 1555

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AUTOMATIC LOCKING

CONTROL BAR WINDOWS

Ludman Auto-Lok Control Bar Window opens without touching screen. Pull bar up to open, push down to close. Completely eliminates push up screens.

School boards select Ludman Auto-Lok Control Bar Windows for many reasons, perhaps the most important of which are to assure greater comfort for the pupil and teacher while at the same time offering lower maintenance costs. No other school window offers such **extreme ease of operation,** a slight pull on the bar upward to open, down to close . . . all done without affecting the screen at all . . . eliminates push-up screens . . . **the safest school window ever made!**

Here is a school window that offers **big savings in maintenance and upkeep.** The Ludman Auto-Lok Control Bar Window is **positively "student-proof".** No parts to work loose...no operator handles to bend or break . . . no gears to strip. No adjustments or replacement of any part of the Ludman Auto-Lok operating mechanism necessary ever. Truly the most perfect of all school windows!

Ludman Auto-Lok Control Bar Windows are the *only* windows engineered to meet ALL school window requirements . . . the *only* windows that *fully* meet ALL ten requirements that experts* agree are essential in a window.

Ludman Control Bar Windows have no equal. Consider these unusual features: instantaneous weather control . . . injury-proof construction . . . lock protection against vandals . . . life-time trouble-free operation . . . plus fresh air while it's raining . . . cooler in summer . . . warmer in winter . . . easiest, quickest windows to clean (from the inside too) . . . handsome appearance. Specify Ludman for **products by Ludman have no equal!**

*Geoffrey Baker and Bruno Funaro in "Windows in Modern Architecture"

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Please send me full information on Auto-Lok windows for modern schools.

Name.....Title.....

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SCHOOL WINDOW ENGINEERING

School Days ...

Will they be SAFE days?

50 *years ago*

not only the little red school house but even many of the largest city schools were made of wood. So were matches!

TODAY'S MODERN SCHOOLS

are fireproof—or should be! To think of building a school today that is not protected by the fire-resistant properties of Genuine lath and Plaster is to disregard all that experience has taught us.

GENUINE LATH AND PLASTER

Gypsum plaster, applied over gypsum lath by skilled craftsmen provides a 7/8 inch of fire protection that enjoys a full One Hour American Standard Fire Rating* by the fire underwriters—a vital hour that can be the difference between safety and sorrow.

* The fire rating for conventional application of ½ inch plaster on ⅜ inch plaster lath. Other ratings using metal lath can be extended to 4 hours.

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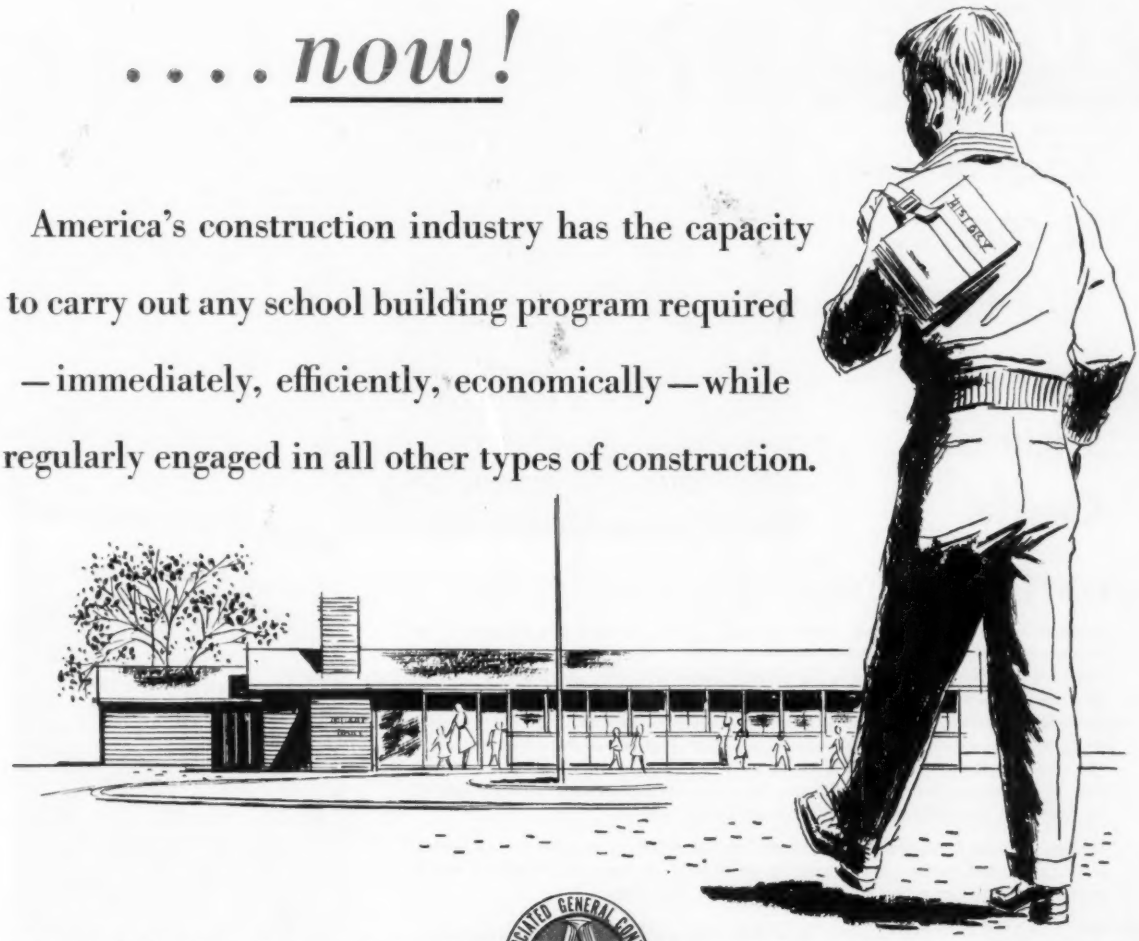
SOUTHERN CALIFORNIA PLASTERING INSTITUTE
315 WEST NINTH STREET • LOS ANGELES 15, CALIFORNIA

An *educated* America must have more schools ....*now!*

America's construction industry has the capacity to carry out any school building program required —immediately, efficiently, economically—while regularly engaged in all other types of construction.



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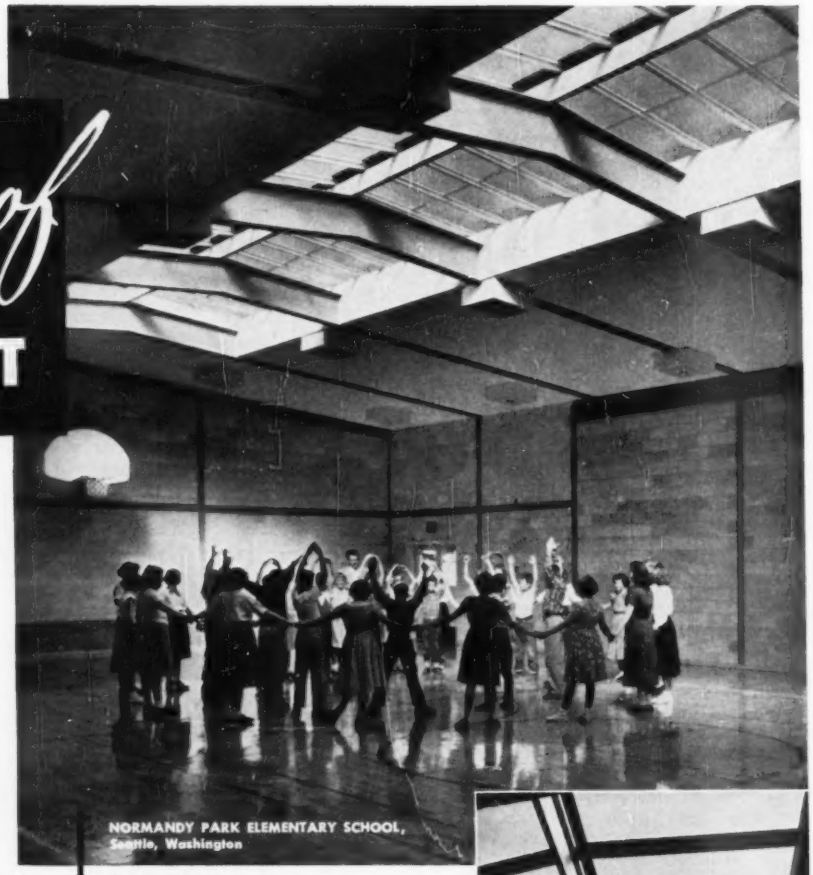
*The **Contract Method** of Construction Safeguards Public Funds*

Ceiling of SUNLIGHT

School Skylights of COOLITE Wire Glass Keep Interiors Bright and Cheerful



NORMANDY PARK ELEMENTARY SCHOOL, Seattle, Washington

Architect:	Waldron & Dietz
Photographer:	Dearborn-Massar

Because of its very pleasant flood of light, Coolite Wire Glass, skylighting the Normandy Park Elementary School corridor in Seattle, Washington, has excited more comment than any other space in the school, relate Waldron and Dietz, Architects. This cheery glow of softened, diffused daylight is borrowed by adjoining rooms providing extremely high levels of glare-free, natural illumination. The glass creates an open, airy atmosphere and appears as clear, blue sky even on overcast days. The same Coolite Wire Glass is used in the multipurpose room. Mr. Waldron reports that "it has proven entirely satisfactory for elementary school use . . . direct light of this variety is desirable because it is pleasant and cheerful."

Coolite removes the harmful qualities of "raw" sunlight, helps students see better, work better, feel better. Coolite permits use of large areas of glass without undue heat and discomfort, makes rooms appear larger, friendlier.

Translucent, light diffusing glass by Mississippi for better daylighting is available in a wide variety of patterns and surface finishes to fit any need within any school budget. Take advantage of Mississippi's wide experience. The company conducts a continuing study of school illumination in an experimental school building constructed on factory grounds. Its technicians are ready to help you with your daylighting problems.

Write today for free copy, "Better Daylighting For Schools". Address Dept. 14.

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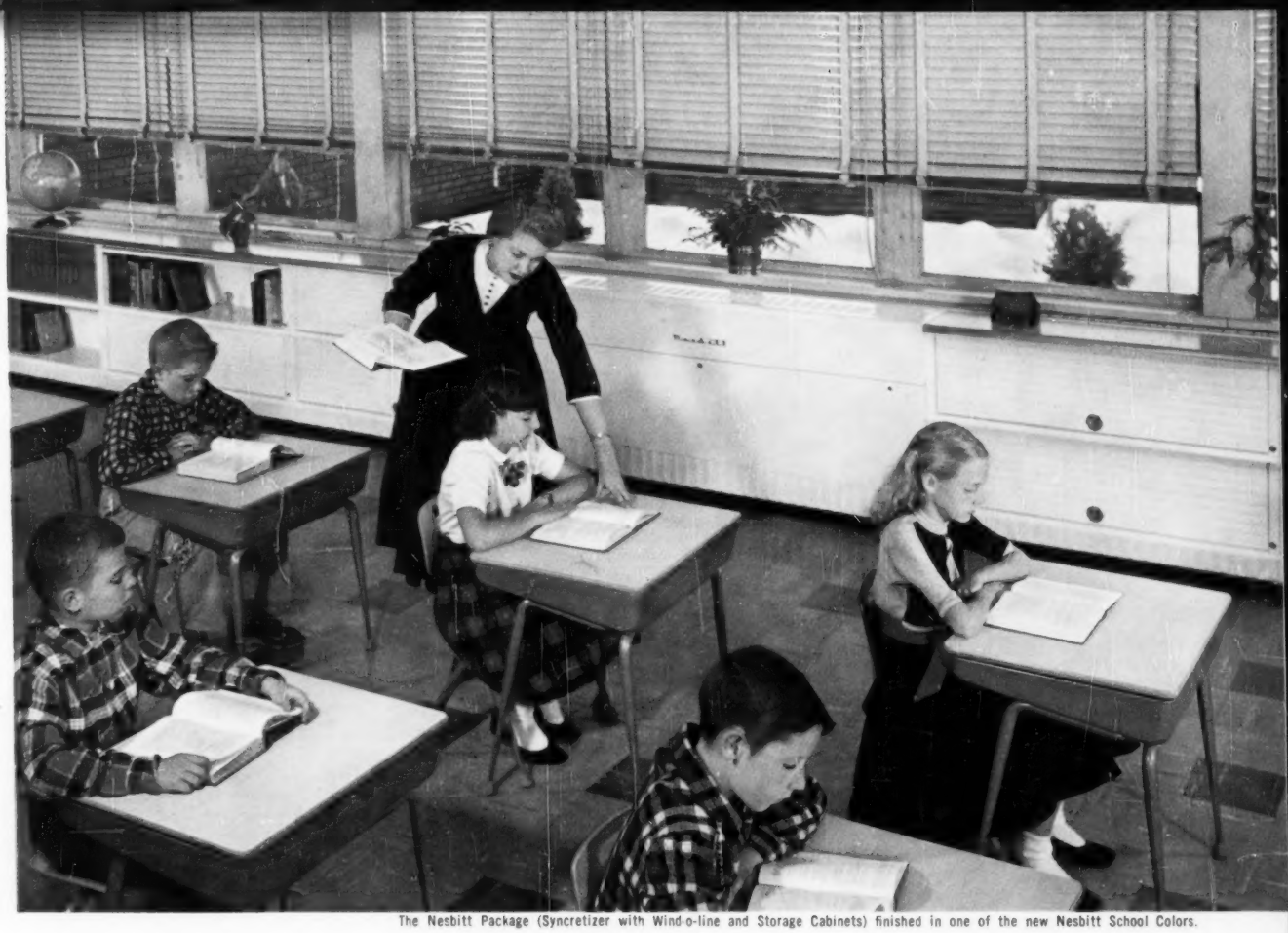
WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS



The Nesbitt Package (Syncretizer with Wind-o-line and Storage Cabinets) finished in one of the new Nesbitt School Colors.

Never before such **comfort** *with such* **economy**

The Series Wind-o-line System saves on construction, equipment, and installation costs

Classroom comfort and cold perimeter protection are greatly increased

Better; costs less: Nesbitt Syncretizers and Wind-o-line Radiation serving groups of classrooms in series hot-water circuits.

All the beauty and comfort of this classroom can be yours *at savings of 20% or more* as a result of this Nesbitt engineering development! The Series Wind-o-line System introduces a unit ventilator radiator that requires only one-third as much hot water as in a conventional system. This reduces the size of pipes and pumps, and permits the Wind-o-line tubing to serve as the supply and return piping for entire classroom wings—thus eliminating mains, costly pipe trenches, coverings, and runouts. And without the expense of additional equipment, Wind-o-line maintains overnight building temperatures. All these economies contribute toward a 20% reduction in construction, equipment, and installation costs. This Series Wind-o-line System means *greater comfort*, too! Cold wall protection is related to actual needs because system water temperature is varied by outdoor temperatures. If you are not yet familiar with this latest Nesbitt contribution to the reduction of school costs, ask your architect or engineer, or write for Publication 104.

AT NO EXTRA COST—SIX NEW SCHOOL COLORS AND HARDTOP SUNBOARDS . . . SEE NEXT PAGE

Nesbitt

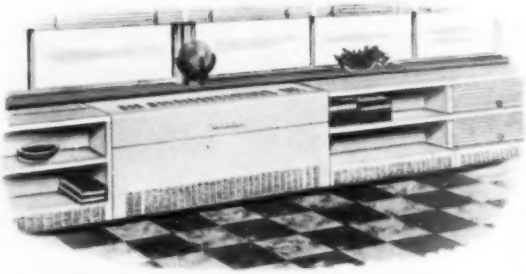
SERIES WIND•O•LINE SYSTEM

John J. Nesbitt, Inc., Philadelphia 36, Pa.—Sold also by American Blower Corporation.

Nesbitt NEW SCHOOL COLORS

School Green L.R.* 33.9%
*Light Reflection Value.

School Tan L.R. 39.1%



One idea from the Nesbitt Color Selector, Publication 100-2

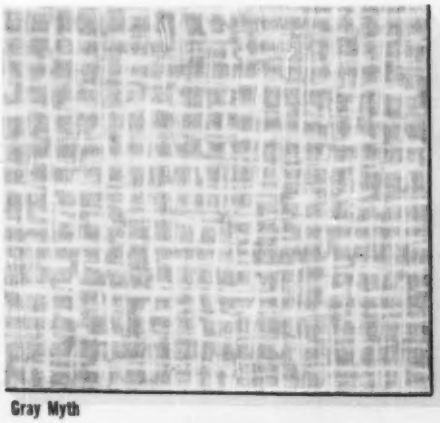
School Beige L.R. 37.5%

School Ivory L.R. 73.4%

School Gray L.R. 50.7%

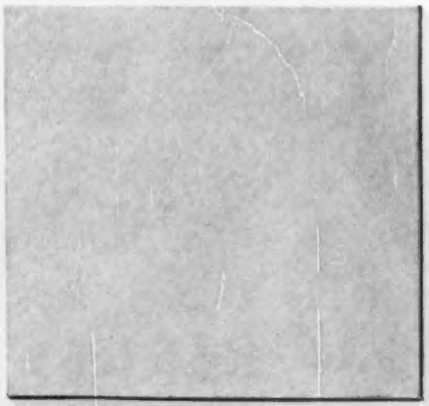
School Blue L.R. 40.4%

The six new school colors enhance the modern beauty and fabulous finish of Nesbitt classroom equipment . . . and the new laminated plastic hardtop for Nesbitt storage-cabinet sunboards multiplies the decorative possibilities.



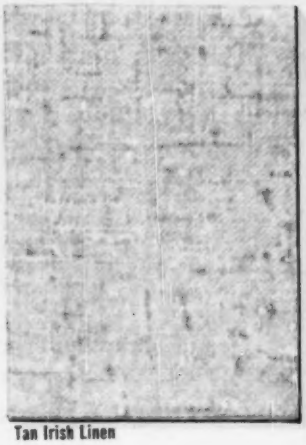
Gray Myth

Nesbitt NEW PLASTIC HARDTOP



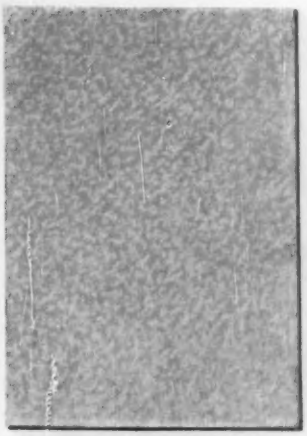
Cement Gray Stippletone

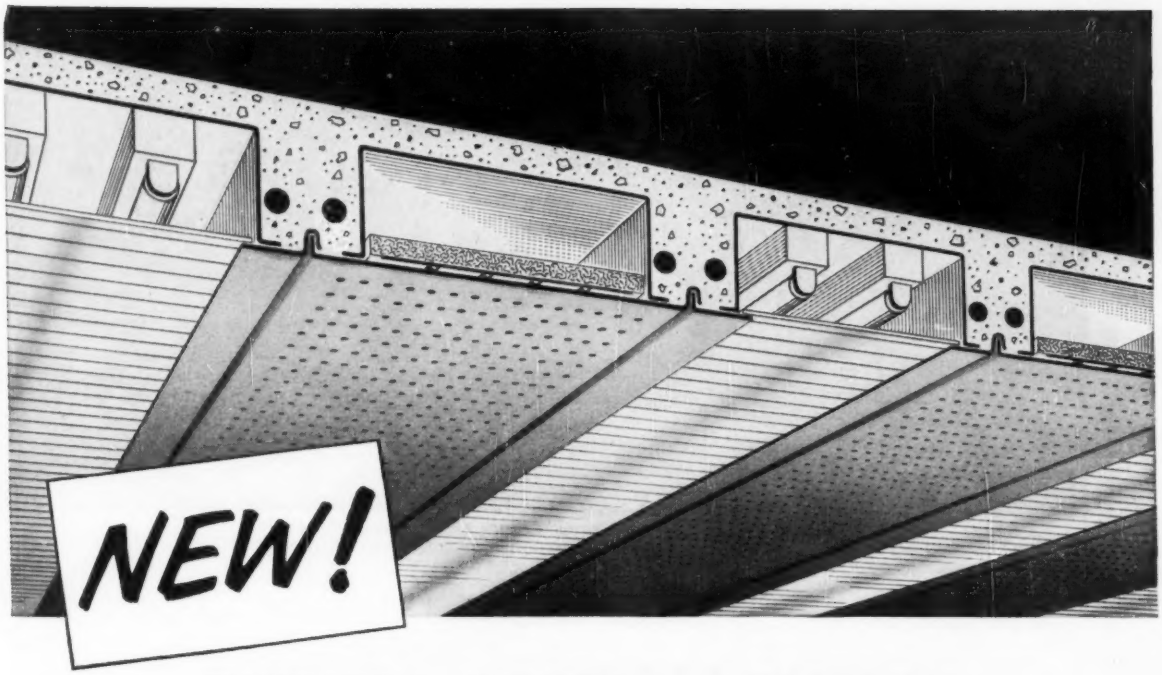
Beige Stippletone



Tan Irish Linen

Green Stippletone





FENESTRA TROFFER-ACOUSTICAL PANEL SYSTEM CUTS COST OF REINFORCED CONCRETE SCHOOL CONSTRUCTION

Multi-purpose Steel Panels provide long-span forms for concrete joists *plus* acoustical ceilings and recessed lighting troffers *built right in!*

Multi-purpose is the key to economy in school construction. The NEW Fenestra* Troffer-Acoustical Panels (TAC Panels, for short) are designed for multi-purpose use of materials and construction labor. They permit you to have acoustical treatment and lighting—features that usually require extra time and labor—*built right in the structure itself!*

Money is saved because 3 expensive building materials are wrapped up in these economical building panels: (1) the forms for concrete joist construction, (2) metal pan acoustical ceilings, and (3) recessed lighting troffers.

Time is saved because the structural floor for the rooms above and the acoustical ceiling and lighting system for the rooms below are completed at the same time . . . with only paint, finished flooring and installation of fluorescent fixtures to be done after the concrete has cured.

And, this new building system gives you better-looking, better-lighted classrooms that are easier to maintain, year after year. The ceilings can be washed or repainted as often as needed, without affecting the acoustical treatment. There is no hanging ceiling or "stuck on" acoustical material to be damaged or replaced.

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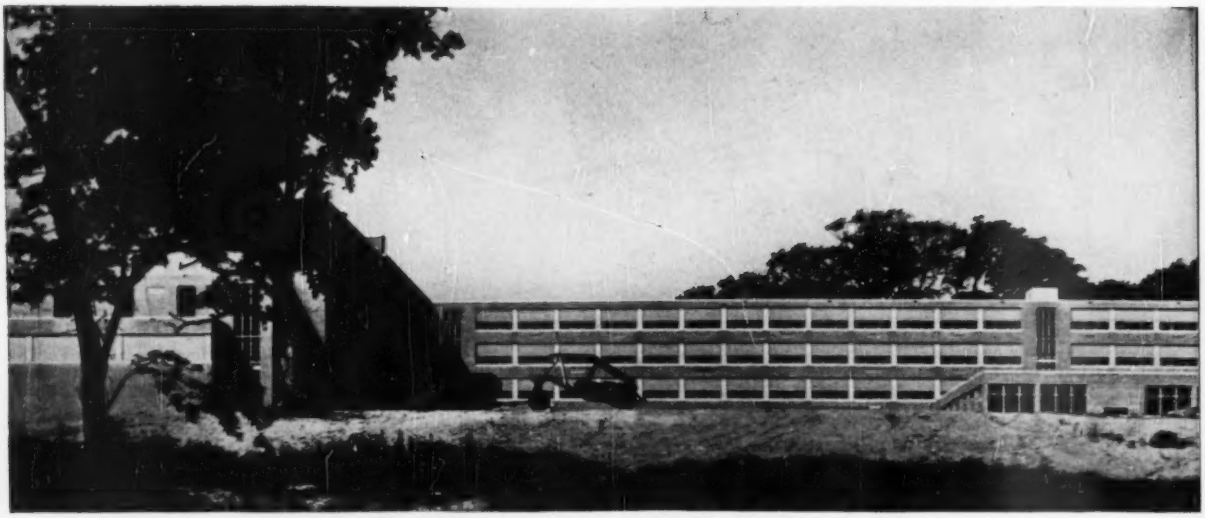

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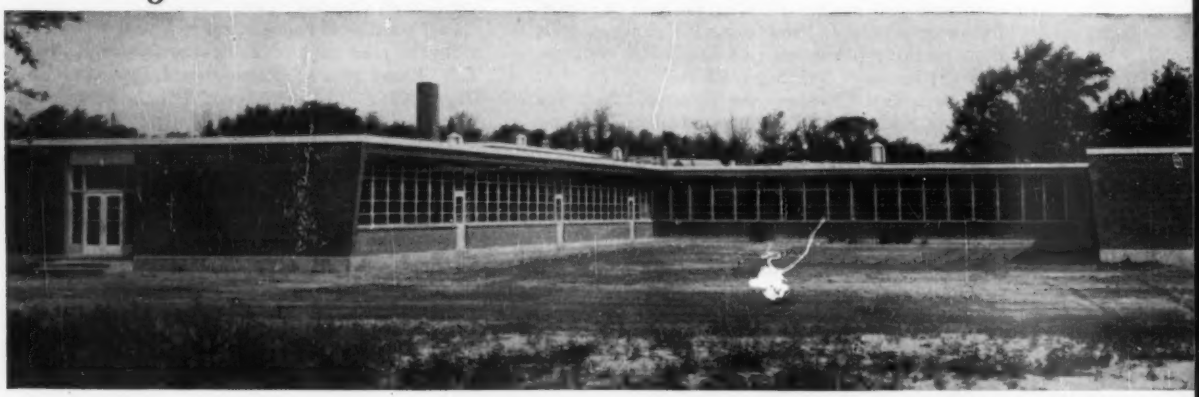

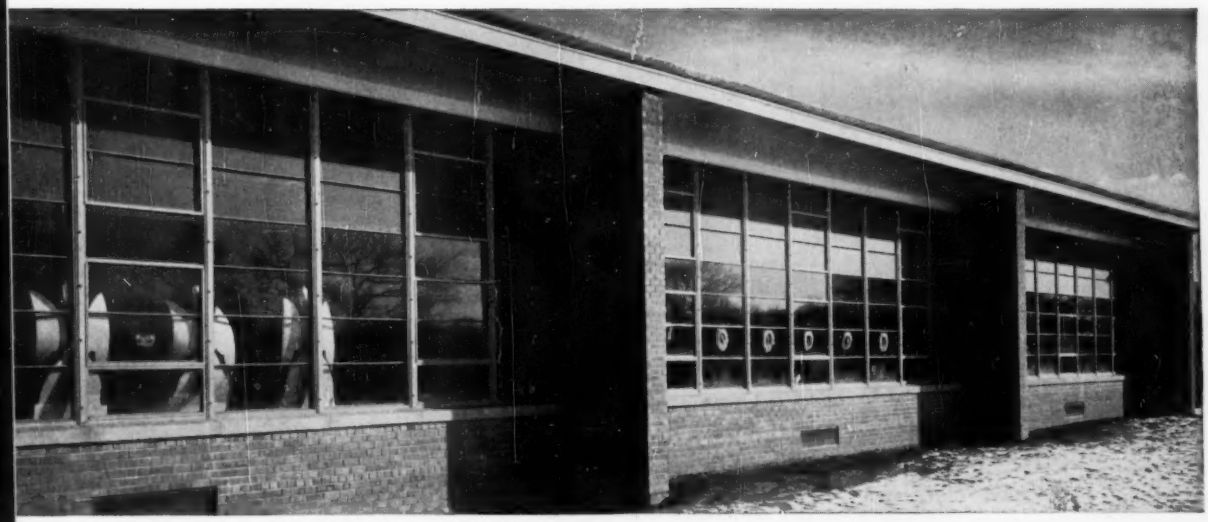

Michigan — Fairview Elementary School, Lansing, Michigan. Architect: O. J. Munson, Lansing. Contractor: Granger Brothers, Lansing.

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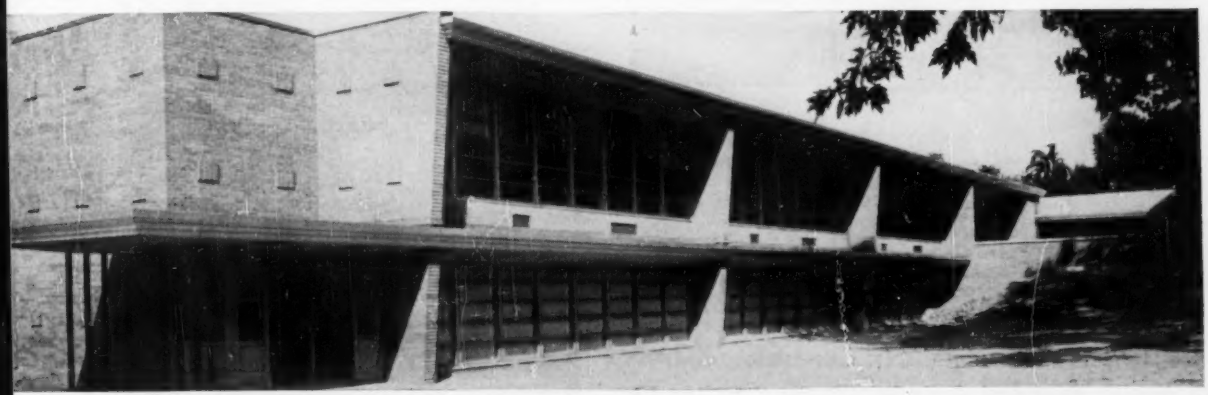

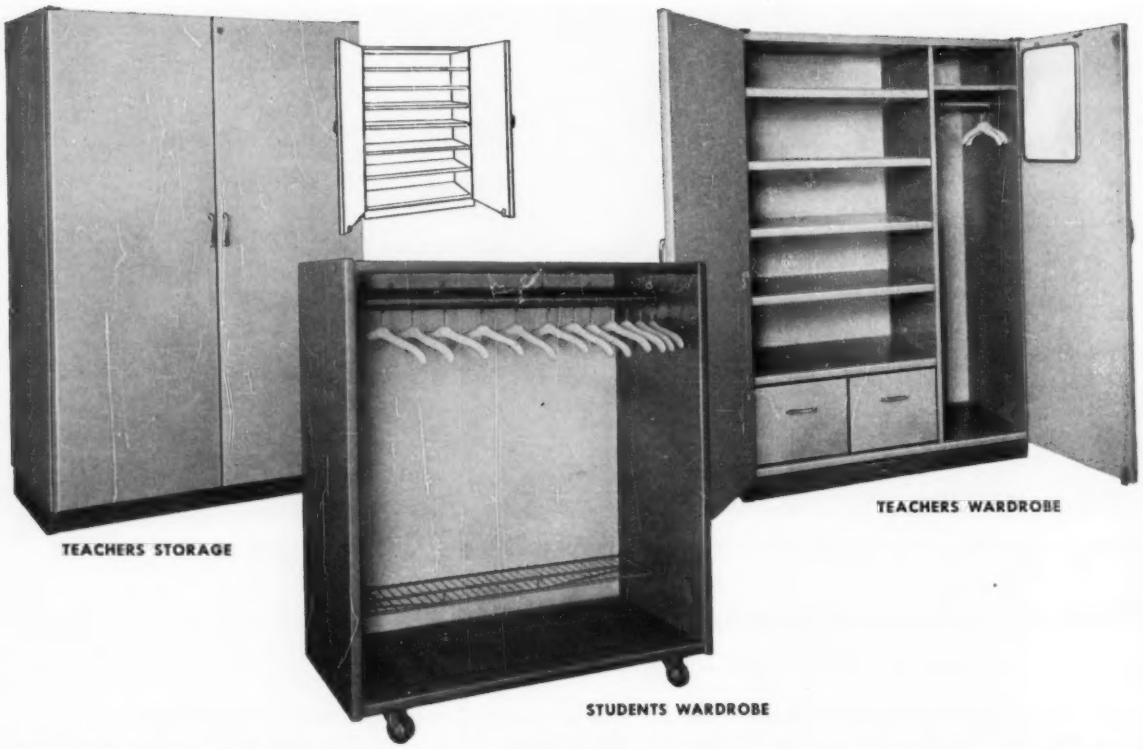

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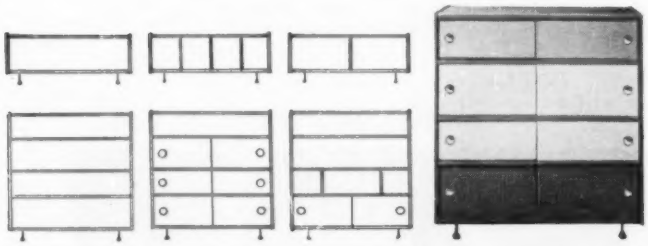

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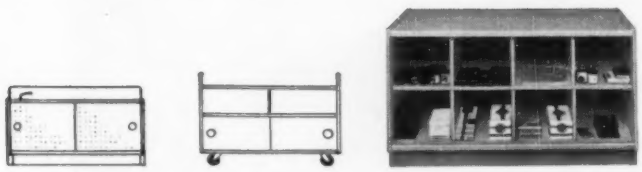

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THE AMERICAN
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JANUARY - - - - - - 1956

A School Building Is for Learning

A. J. FOY CROSS, Ph.D.
Chairman, Committee on Buildings and Equipment, NEA — DAVI
Professor of Education and Director of Placement Services
New York University
New York, N. Y.

There is an old adage in navy circles which says that all activities of the navy, even paper work in the office or weather watching in the center of a desert, have but one purpose — "to support the actions of the fleet." So it is with school buildings. They must be built and equipped for the purpose of facilitating an educational program.

With those who plan and build our school houses lies one of the biggest of all community responsibilities. As they plan and build, they mold the destiny of youth for years to come. They determine to some very large extent the nature and effectiveness of their community's efforts to educate its young people. If their planning is wise, their tribute can be the channeling through handiwork in brick stone of their community's many forces for good. If their planning is less than wise, they must assume a large share of the blame for those ills which befall the community which does not use its educational resources well.

A school building is for learning. It behooves us to see that it stands *for* the best we know in goals and methods of education.

School buildings have always been planned and built to support some sort of educational program. The educational program of the past, remnants of which are still with us, and for which our early school buildings were designed, was a borrowed, old-world plan of schooling designed to fit a way of life and a way of education from which we as a nation have long since departed. Our way of life and our educational program are vastly different today. And in our schools we have changed from a textbook-dominated curriculum to a plan and program of schooling which is based upon what is known to be best for the manhood and good citizenship in our land. It is important that these differences be reflected in the schools we build for modern communities.

Of course, a youth's learning goes on wherever he goes. He cannot escape the everyday learning experiences, good and bad, which go on every moment he is awake. In the modern community the workship of a youth's *directed learning* program is, however, the classroom. Here is the place where, under skilled teacher guidance, young Americans work day by day at the big job of learning how to learn, and where in a wholesome environment, they practice the essential skills of living and working together.

To serve these worthy purposes of modern education, classrooms must be provided in which there is adequate space, equipment, and instructional material for students to do their directed learning, to accomplish their school jobs under the supervision and with the aid of a skilled teacher with whom such jobs arise. With proper school facilities which permit the application of the best methods and of the most efficient programming, the young learner does his schoolwork in well-equipped classrooms under the personal guidance of good teachers rather than, as in the past, at a removed time and place with the misguidance of well-meaning, but frequently less skilled and less interested librarians or study-hall teachers or busy parents.

What is a modern classroom? What characterizes these workshops for learning in which teachers may apply and youth may enjoy the advantages of the best know-how in education?

For best application of what is known to be good educational practice the modern high school has a sufficient number of "regular" classrooms to accommodate all its students in groups of not more than 25 or 30 (except for those rooms which are especially equipped as laboratories or shops for special-skills development). The high school room should have first of all **Efficient Space:**

1. Approximately 1200 square feet of usable, adaptable classroom floor space;
2. Approximately 100 square feet of floor space immediately adjacent to, but detached from the classroom proper for use as a teacher's study and as a pupil-teacher-parent conference room;
3. Approximately 100 square feet of student "special-work" space;
4. And it has been provided with adequate storage spaces for instructional materials and students' work.

Every effort should be made to make such rooms a **Healthful Environment:**

5. With facilities for maintaining 30–70 foot-candles of shadow-free light at reading and working areas;
6. With facilities for reducing light in varying degrees of lightness to as low as 1/10 foot-candle for certain types of picture projections;
7. With means of heating and cooling and ventilating room without noise or drafts under all conditions of use;
8. With facilities and structure which screens out distracting outside noises and reduces reverberation of sound from within the room;
9. And which has been painted or otherwise decorated and furnished in pleasant light color tones.

The modern classroom has the **Learning-Aid Facilities** needed for the jobs to be accomplished:

10. It has been wired for convenient use of modern classroom equipment;

11. It has been appropriately equipped with running hot and cold water;

12. It has been provided with functional projection, radio, television, recording and playback, and other instructional equipment such as books, maps, globes, chalk boards, display surfaces, learning-resources files, and with flexible-use, adaptable, healthful furniture.

These are the demands a good school-education program in 1956 makes of a schoolroom.

Without de-emphasizing any part of this list, let us look more closely at three of these demands which have developed greater importance because of the widespread use of audio-visual materials in the school program.

Light and Light Control

For most everyday classroom activities, it is believed that the classroom should provide a fairly constant light level of 30–70 foot-candles at all reading or working surfaces. It has been discovered that it is also important that areas immediately surrounding the reading or work areas be well illuminated.

For very many important classroom experiences, however, special light controls or means for reducing light to very low levels in the classroom are also essential. At the present time such controls are, despite claims and rumors to the contrary, a necessity in the modern classroom. No system has yet been devised which permits effective day-to-day class use of all school-type projected material without efficient light control facilities. For example, the opaque projector, an essential and most versatile instrument, cannot be used except under very low light-level conditions.

It is true that there are a few high-intensity projectors on the market which will project certain materials in a moderately lighted classroom. But it is also true that such materials and such projections make up a very small part of a well-rounded audio-visual program.

Furthermore, school planners are becoming increasingly aware of other reasons for providing light control in classrooms. For example, a means of achieving generally low-light levels is considered important, not only for increasing the effectiveness of projected visual materials, but for its effect in reducing visual distractions from other group-learning situations such as demonstrations, chalk-board explanations of lectures and discussions, panel discussions, etc.

It is interesting to note that classrooms which neglect appropriate light control are frequently both more expensive and less effective for learning than similar spaces in which this important factor has been adequately dealt with. Large "picture-window" walls, which in themselves are relatively expensive and frequently require costly structural adaptations, present both unhealthful high-sky glare and a direct glare from surrounding objects such as walks and snow. In some such rooms this glare has actually been so great as to require all students and the instructor to wear sunglasses during school hours on all bright days. Such fenestration also increases markedly the distraction factor of the outside, which in turn places undue strain on those who strive to attend to interesting tasks within the room. Similarly, "clear-story" or high window paneling on inside walls of the classroom is costly in installation, in structural adaptations, and in maintenance costs. And, inasmuch as modern education now normally demands control of light from these sources, a final unduly high expense must be met in drape or window blind installation for all such glass areas.

On the other hand, rooms with a minimum of window area and easily controlled glare and shadow free artificial lighting, which may be built and maintained at a much lower cost, are at once a better, more wholesome, and more effective learning environment.

Art and beauty with educational efficiency quite properly characterize the structures of many school architects in our land. But, wherever the creation of such artists threatens wholesome education of boys and girls, there must be no compromise with what is good for youth.

It is not wise to spend the all too few school-building dollars on school buildings which are less than the most that money can buy in good educational facilities. Parents and others who plan and pay for our schoolhouses can hardly justify either duplication of antiquated instructional facilities or costly flights of modern architectural imagination on the community's budget — especially when such traditionalism and such flights reduce the good and healthful education potential of the community's schools.

Ventilation and Temperature Control

Discomfort has long been known to be a serious distraction factor in learning situations. Poor ventilation and improper room temperatures create uncomfortable, and in some instances, unhealthy environment in the classroom. The extremely wide range of activities taking place in a building at anytime during the day makes it unlikely that ventilation and temperature control can be effective for any one classroom situation unless these controls are localized.

Electrical and Antenna Installations

Modern schools with up-to-date instructional procedures, like modern homes and industries and even farms, are "electrified." A simple and effective method of assuring adequate electric supply to all parts of the classrooms is a must in today's schools. Without an adequate number of outlets in all walls of the classroom, flexibility of group work which utilizes projectors, recorders, radios, etc., is seriously curtailed. With the rapid advance of television and its adaptation to youth education it becomes important to wire classrooms for broadcast and closed circuit television as well.

Auditoriums and Activity Areas

While the classroom is the normal place for most basic learning activities and lesson periods, there are times when activities or meetings must be planned for groups larger than the individual class. In the auditorium and other large-group instruction rooms many items in the wide range of instructional facilities available for single class use should also be made available for larger-group use.

The auditorium for the modern school is more than a theater and more than an empty room which can seat a large number of people. It is a functional part of the school plant.

It should be remembered, however, that even the best equipped auditorium does not take the place of a well-planned classroom in which adequate provision is made for utilization of all types of modern teaching materials and methods. In fact, if a school community cannot afford both well-equipped classrooms and an adequate auditorium, the classrooms should come first. It is most difficult to justify under any circumstances the use of the greatly limited school funds of a community for an auditorium which is largely a community meeting hall. Such auditoriums, which certainly may play a most important role in community life, should probably be financed by other than *school-budget* money.

There are three broad criteria against which we judge the success or failure of the educational program for which we build school buildings in our modern society. A good or successful education program means the application or use of all available learning resources within and outside the school for maximum:

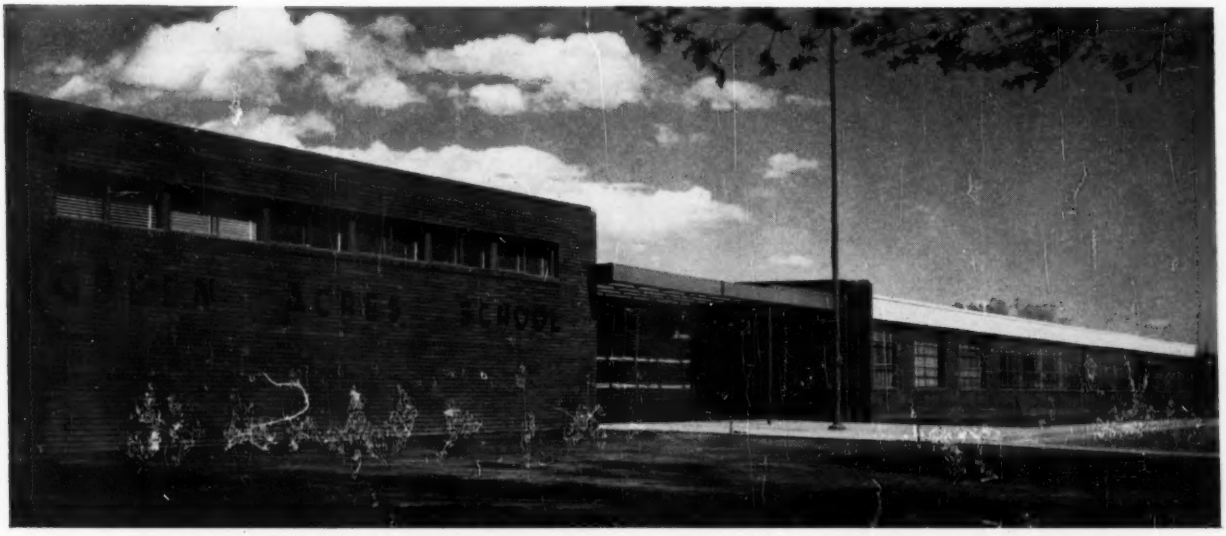
a) Personal, individual growth in health, happiness, and well-being;

b) Growth among individuals of an active interest in the health and well-being of all other people;

c) Continuous growth within individuals of a confidence in their ability to recognize and solve the little and big problems of living in a satisfying and socially acceptable manner.

In the schools in our society, none of these three objectives ever stands alone. The products of our country's educational system, it is frequently proclaimed, are to be healthy, happy people with a regard for others and a confidence in their future. These three ambitions are the inseparable guideposts which together measure whether a school or a teacher, or a community is doing a good job of educating its youth. No administrative policy, no course of

(Concluded on page 94)



A front exterior view of the Green Acres Elementary School, Fort Morgan, Colo. — J. Roger Musick, Architect, Denver, Colo.

Fort Morgan Builds a School

CARL B. FRANZEN
Superintendent, Public Schools of Fort Morgan
Fort Morgan, Colo.

W. HERSCHEL McKAY
Principal, Green Acres School
Fort Morgan, Colo.

Because of natural population growth in Fort Morgan, Colo., and the discovery of several rich oil fields within and in close proximity to the district, the need for additional facilities became the number one challenge to the community and board of education. The school enrollment in this agricultural community had risen sharply in a five-year period. In 1948 there were 1813 students enrolled. This figure had grown to 2239 in 1953. The construction of a new elementary school — the first for Fort Morgan since 1908 — was a must.

Preliminary groundwork was accomplished with the assistance to the board of a Citizens Committee and the local Parent-Teacher organizations. The bond issue passed by a substantial majority and many weeks of concentrated, democratic planning followed.

In order that the new building would be an educationally functional school, a planning committee of school employees was appointed. This committee consisted of faculty members from the primary, intermediate, and junior high levels, along with representatives from the school cafeterias and custodial staff.

The committee worked on the premise that schools are for the purpose of integrating the child's complete growth. With this in mind, the group considered the building situation itself. Careful consideration was given to providing adequate space, both in the classroom and outside play areas so that the groups could work, play, live, and learn together. A careful study was made to adapt the specific needs of the attendance unit which the building was to serve. The committee's specifications called for a 12-classroom school, with music room, multi-purpose room, stage, and cafeteria, and kitchen. They made provisions for adequate space, proper lighting (natural and artificial), adequate heating and ventilating systems, and efficient maintenance characteristics.

The detailed written educational specifications, as set down by the committee, were then given to the architects, J. Roger Musick and Associates, Denver. After several meetings, which first considered sketches and later preliminary plans, the committee was ready for the final reality of the blueprint.

Built From the Inside Out

The Green Acres School, located on a seven and one-half acre tract in a new subdivision, is much different in many, many ways from the older buildings. The new school was built from the inside out, with the first consideration to usefulness and convenience. After this, the best possible outside appearance was designed.

The main wing is 280 feet long and 60 feet wide. The six primary classrooms measure 40 feet by 24 feet. The multi-purpose room is 60 feet by 40 feet and adjoins the cafeteria and kitchen. There is a total of some 24,110 square feet in the entire building.

The building is one-story. It embodies a slab-on-grade construction with slightly sloping roof over the classrooms and flat roof over other areas including the cafeteria, kitchen, and multi-purpose room. The roof is on steel girders and the drains are to the inside. The exterior walls are of cherry brick with gray sandstone trim and slight ornamentation. The interior walls are of reinforced pumice block and glazed tile with decorative trim of the outside red brick.

Floors are of ceramic tile in the toilets and of asphalt tile in the classrooms. Corridors and cafeteria floors are of colored, monolithic cement. Quarry tile was used for the floor of the kitchen. Gymnasium grade maple flooring was used in the multi-purpose room.

The pumice block walls of the corridors, cafeteria, and toilet rooms have a 4 ft. 6 in. base of glazed tile. The exposed pumice blocks, in the entire building, are painted with delightful colors in 16 combinations, balanced for optimum light and aesthetic values. All ceilings are of acoustical tile on gypsum board backing. The interior woodwork is of birch, finished in a natural blond tone.

All classrooms contain sliding door cloak closets, a teacher's closet, cupboards, and storage space. The storage space is under a linoleum covered work counter which also has a sink and running water. These rooms were planned for a normal load of 30 children, the capacity of the building being about 350 pupils.

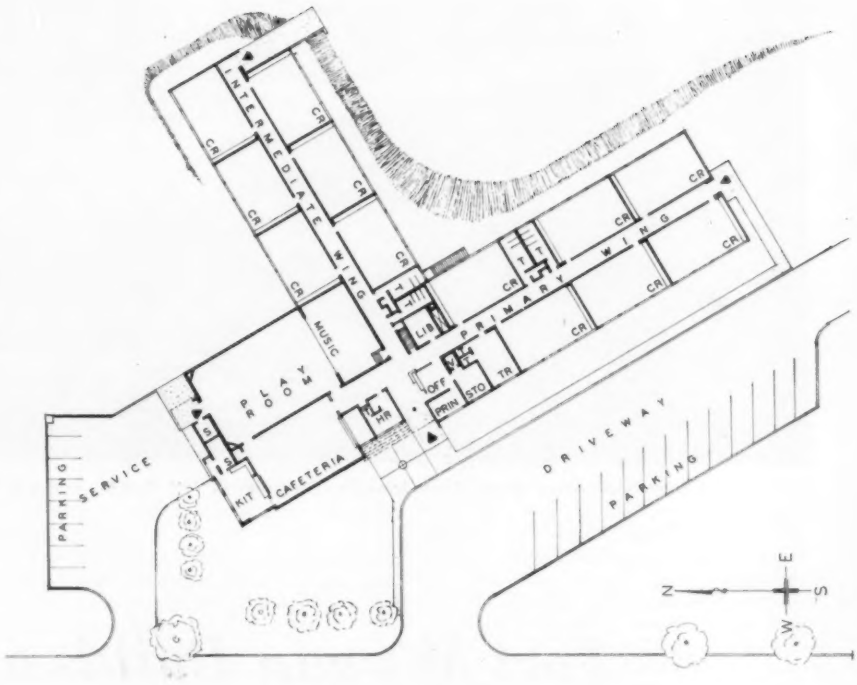
The Green Acres Elementary School meets the many requirements for a workable and functional educational plant.

Safety

The school plant is highly fire resistant with sturdy masonry walls, concrete floors (covered with tile in the classrooms), steel joist roof construction, and single story for quick egress. While the heating plant is located in the small basement, it is not under any of the classrooms. Playgrounds and building are well away from traffic.

Lighting

The Green Acres School has large window expanses for plenty of natural light. Venetian blinds are used to control this light. Ceilings are slightly sloping to the interior to improve light reflection. Artificial lighting is provided by louvered fluorescent lighting which provides 35 foot-candles. Coloring of the rooms promotes light utilization and reduces eyestrain. Furniture, floors, chalk, and tack boards were selected with sight-saving qualities in mind; they are highly compatible with room decoration.



A site and floor plan of the Green Acres Elementary school

Heating and Ventilating

Heating is by the massive movement of warm air, using natural gas as the fuel. There are six heating zones to assure effective distribution, warm air reaching the rooms through perimeter distribution. At the same time, fresh air is continually delivered into the classrooms by a system of intake and exhaust fans located throughout the building. During warm weather the system automatically becomes a ventilating unit, moving unheated fresh air through the building.

Classroom Space

Classrooms in Green Acres are designed to provide 30 square feet of space per pupil, accepted as the standard for elementary buildings. Corridors and other spaces are held to minimal sizes to allow adequate, useful space.

Durability

Green Acres has high durability, utilizing as it does concrete, masonry, and steel construction. Glazed tile was used as a dado in corridors, cafeteria, and toilets. The kitchen walls are entirely of glazed tile.

Construction Economy

Cost of the new building was as low as could be consistent with quality, safety, and other requirements. Cost can be kept low by such devices as using colored concrete floors, lower ceilings, natural pumice block walls, adequate but not over supplied toilet rooms and narrower but sufficient corridors. All of these were used in this building. The actual construction cost of Green Acres School, per square foot, was $9.81. This did not include site, site preparation or grading, movable furniture and equipment.

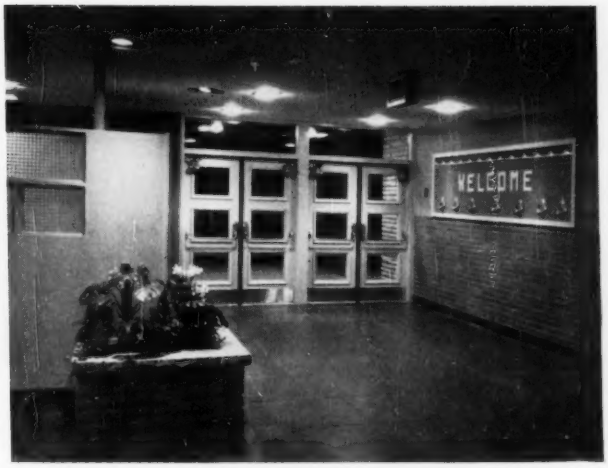
Other Features

There are two playgrounds, one for lower grade youngsters and another for the upper grade students. This promotes safety in play, more ease of supervision and more general enjoyment of the playgrounds. Green Acres also has two parking areas. One of these, immediately in front of the building, is for school patrons and other visitors. A second is located adjacent to the service area and is for the use of

school employees. A private one-way drive makes for ease and safety in loading and unloading the school buses.

The multi-purpose room can be used for physical education activities and play, as well as for assemblies and programs. The stage is designed to serve also as a music room, a sliding wall being used to separate the two rooms. The primary purpose of the cafeteria is, of course, for lunches, but is used also for visual education and small meeting room. Finally, Green Acres was constructed in such a way that an addition can easily be made when this becomes desirable.

Site preparation and building construction was accomplished in eight months at a construction cost of $236,519.10.



The attractive lobby of the Green Acres school

A typical classroom at Green Acres, showing the teacher's closet, cupboards, and other storage space with a linoleum-covered work counter and a sink and running water. The classroom walls are of concrete block while all ceilings have acoustical tile.

One of the durable, attractively painted corriders of the Green Acres school

THE

MINNESOTA LAKE

SCHOOL . . .

A Community Combination School

I. O. FRISWOLD
School Plant Specialist
Haarstick, Lundgren, and Associates
St. Paul, Minn.

A combination school is one that houses the elementary and also the high school grades. It may or may not have a kindergarten. Seldom, if ever, are grades 13 and 14 provided for. The combination school is found in the smaller school districts that, as a rule, have but one public school attendance center.

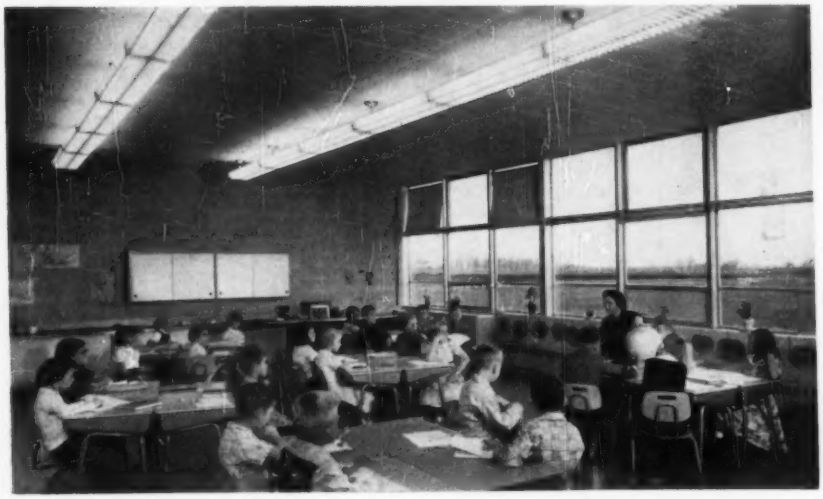
Because the combination school houses the very young as well as older pupils, and because it is typically a small school, it presents school plant planning problems that the larger school district with separate elementary and separate secondary schools, to a large extent, avoid. One of these problems is to secure a unified physical plant and at the same time provide effectively for the separation of elementary and high school pupils. Another problem is to design multi-use facilities that enable the small secondary school to provide enriched educational opportunities and maximum services for its pupils and also for out-of-school groups. These planning problems are common to most schools, but they require special attention in planning the physical plant for the typical combination school.

The Community School District

Minnesota Lake is a village with a population of 600 located in south central Minnesota. It serves as a community center for the surrounding agricultural area. The school district, of which the city is the hub, includes an area of approximately 85 square miles, located in three different counties.

The enlarged district has an assessed valuation of about $1,500,000. The gross bonding power of a school district in Minnesota is limited to 50 per cent of the assessed valuation used for taxing purposes, so the maximum bonding power of this community school district is about $750,000.

Before consolidation, the physical plant of the district consisted of a classroom structure erected in 1913 and an addition consisting of a gymnasium-auditorium and two classrooms erected in 1937. The school



A typical elementary grade classroom of the Minnesota Lake School, with built-in counter, sink, and storage facilites and mobile furniture units

The Minnesota Lake Combination Community School Center, Minnesota Lake, Minn. — Haarstick, Lundgren, and Associates, Architects, St. Paul, Minn.

site had an area of about one acre, being approximately 130 feet wide and 330 feet long with the long axis extending east-west. The 1913 unit, in particular, was in poor structural condition and the entire existing plant was inadequate and unsuited to the housing needs of the enlarged school district.

The general population and the school population of the district are relatively stable. There is no reason to believe marked changes in population will occur in the future although the enrollment in both the elementary and the high school will increase. At the time the enlarged community school district was formed, 218 children were enrolled in grades 1–6 and 168 in grades 7–12. The ultimate enrollment in the elementary school is expected to reach about 250 and in the secondary school about 230 pupils.

The Educational Specifications

The type of school organization, the curriculum, class-size policy, methods of instruction, number of pupils, and the objectives of the school were considered and, in the final analysis, determined by local school officials. The service and educational needs of out-of-school groups and the extent to which these were to be met through the school were also given consideration in arriving at an answer to the broad question: "For what kind of program are we to provide housing?"

On the basis of established educational and service needs, a schedule of the number, size, and types of spaces that the public school required was developed by the architects in co-operation with local school officials, the teaching staff, and consultants in the state department of education.

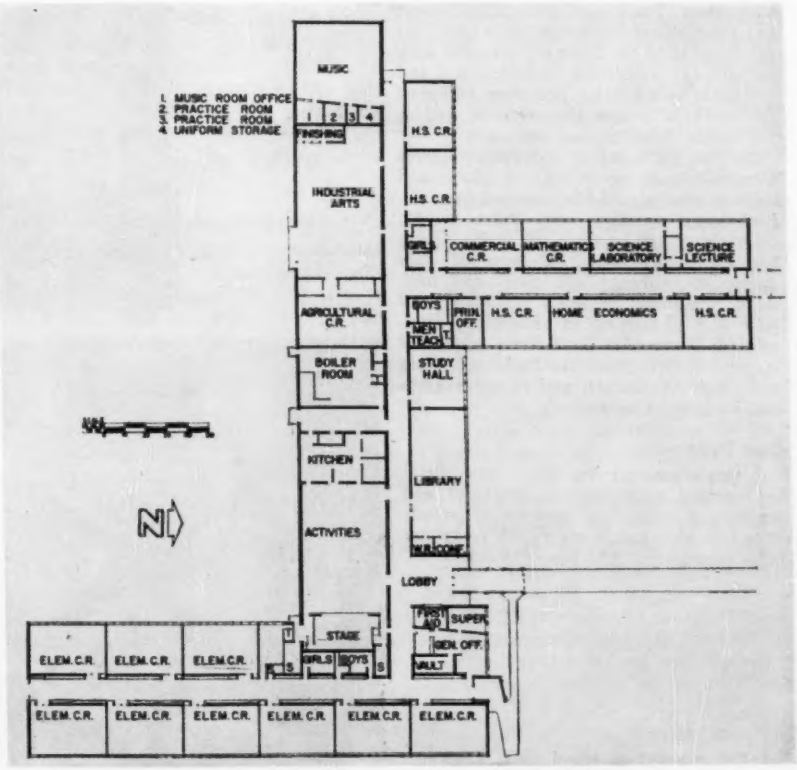
Physical Plant Development

The implementation of a school plant program requires that needs be reconciled with resources. This is the point where usually something has got to give. In the case of the Minnesota Lake Community School District, it became apparent that a complete new physical plant was not within reach. The construction project as finally developed and carried out was briefly, as follows:

1. Acquire a new site of 15 acres.
2. On the new site erect (*a*) a combination school housing pupils in grades one through twelve, and (*b*) a school garage providing storage and related services for eight buses.
3. Tear down the 1913 structure but retain the existing gymnasium-auditorium to house the secondary school physical education and athletic program until the second phase of the school plant development program could be completed. In the second phase, to be carried out at some future date, provision would be made for a new gymnasium-auditorium and such additional instructional facilities as the elementary school or the high school might require.

Among the noteworthy features of the new physical plant, attention is called to the following:

1. Effective segregation of elementary school and high school pupils is achieved on the playground as well as within the school building.
2. The bus garage although placed on the



The floor plan of the Minnesota Lake Community School, illustrating the provision for effective separation of elementary school and secondary school areas

Left: The special area set aside for use of elementary grade pupils, with provision made for conference and librarians' rooms. Below: Mr. Abe L. Fox, superintendent of schools, at the entrance of the administration suite.

school site is located where it will constitute neither a nuisance to the school nor a hazard to the safety of the children.

3. Plans for the initial unit anticipate future additions to the structure.

4. Special plans for the landscaping and development of the school site were prepared by the architect. Plantings are planned, in part, to control ground glare.

5. Emphasis is placed on the planning and equipment of spaces to serve multipurposes: (*a*) activity room serves as gym, auditorium, lunch, and community room; (*b*) combination home-economics unit; (*c*) combined shop for industrial arts and agriculture; (*d*) combination science room; and (*e*) business education classroom equipped for use as a general classroom as well as for typing, bookkeeping, etc.

6. The construction materials include terrazzo floors in lobby, corridors, and toilet rooms; glazed tile wainscot in activity room, corridors, and toilet rooms; clear glazed tile base for all walls; rubber tile for library floor; hollow metal door frames throughout; oak doors and millwork; aluminum projected windows; roof edge and all flashing of aluminum; semi-indirect fluorescent luminaires; acoustical correction throughout the building; steam heat, unit ventilators, and effective automatic temperature control.

Cost Data

A single contract was let in June, 1953, for general construction, electrical and mechanical work. The contract price was $568,145 with unit costs of 95 cents per cubic foot and $12.93 per square foot.

The spacious music suite which houses the instrumental and vocal groups of the Minnesota Lake school

The combination school shop offers secondary school students an adequate farm shop and industrial arts program.

Population Mobility and New School Needs*

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The historian of the future may be puzzled to find that between World I and the advent of World War II the various types of social scientists were in substantial agreement that the population of the United States would become stabilized and probably reach its peak before 1975. However, history will reveal that within the ten years following World War II an unprecedented growth in population began to appear.

This resurgence in population is so great that present estimates place the 1970 population of the nation somewhere between 189,110,000 and 204,200,000.[1] Furthermore, the population forecaster of today is hesitant in venturing the date at which the population will have reached its peak.

Factors Changed Population Forecasts

Those of us who have lived through the past 40 or 50 years have had to undergo considerable reorientation to accept various factors which have caused confusion in accurate forecasting; namely, the decline in the birth rate after World War I and then its sudden increase after World War II; the tendency on the part of parents with the greater amount of formal education to reduce the size of their families, only to find that parents with the same amount of education in the following generation reverted to larger families after World War II; the reduction in the average age for marriage of females by two years and of males by 4.2 years in the past sixty years;[2] unemployment insurance; group hospitalization plans, and group health and accident insurance as they contribute to the life span are but a few of the efficacious forces conducive to increased population which were not anticipated by earlier forecasters. Perhaps the historian of the future will be better able to analyze the causal factors influencing population change.

The problems arising from the sudden increase in population are difficult at best, but these same problems are accentuated by the fact that the population increase varies greatly geographically. This is due not only to the local variation in birth rate and death rate, but also to a factor which is seemingly becoming much more pronounced; namely, the mobility of the population.

Factors for Population Mobility

People have been on the move throughout the history of our nation. In recent times we have witnessed the migration of the Oakies from the Dust Bowl to California; the Negro sharecropper from the Cotton States to northern industrial areas as a result of mechanization in cotton harvesting; the movement of industry from one part of the country to another because of the availability of cheaper labor and closer proximity to raw materials or more convenient locations for distribution; the establishment of new industry such as air conditioning, development of the transistor, the atomic reactor, extraction of and the development of the use of titanium metal; the decentralization of industry to provide safeguards against mass attack by an enemy; and the growth of military installations. These are but a few examples of reasons for population mobility in this country. Furthermore, the GI's who moved from place to place became less provincial. Many of them selected a wife or husband from a state other than their own, took a GI training course in still a different state, and frequently obtained a job and established a home in a state where neither spouse had resided and in which neither one had been educated.

The more mobile part of the population, in general, consists of younger people of child-bearing age. Their moving into a new community means not only a greater percentage of child-bearing parents but also parents of today who have larger families than most of their parents had.

The December, 1953, issue of *The Child*[3] reports that over a period of one year, from 1950 to 1951, there was an increase of 9 per cent in the number of families with three children and a 13 per cent increase in families with four children.

Large developments, such as at Levittown in Bucks County, Pa., have the immediate problem of providing elementary schools and the later dilemma, in six or ten years, of too much elementary school space and a paucity of secondary school facilities, as this same group of children converges into high school. For example, 52.3 per cent of the family heads in Levittown were under 30 years of age in 1952, according to the Office of the Bucks County Superintendent of Schools. To indicate the contrast, the comparable figure for the United States when the census of 1950 was conducted was 14.2 per cent.[4]

The mass movement of population creates many problems including transportation, supply of public utilities, fire and police protection, sewage disposal, and, last but far from least, the need for new schools. The day is long past, because of the increased mobility of the population,

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[1]U. S. Department of Commerce, Bureau of the Census, *Illustrative Projection of the Population of the United States by Age and Sex*, Series P-25, No. 78, Aug., 1953.

[2]Greenberg, Sidonie M., "Why They Are Marrying Younger," *New York Times Magazine*, Section 6, Jan. 30, 1955.

[3]Department of Health, Education, and Welfare, *The Child*, Dec., 1953.

[4]Bucks County Public Schools, *Children Per Housing Unit for Levittown, Country Clubber and Oak Ridge*, Mar. 6, 1952.

for educational offerings to be settled on purely local needs.

Federal Government's Role

The Federal Government in the early forties recognized the impact on the schools as a result of the mass movement of the population into certain communities for the production of defense materials or for military reasons. The Lanham Act, although not always sufficient to provide local communities with the federal assistance they desired, did provide allocations for both maintenance and operation, and school construction. A type of Federal aid similar to that under the Lanham Act has been continued until the present time. For example, the 84th Congress has appropriated for use in federally affected areas the sum of $24,000,000 for school construction (PL815) and $65,000,000 for maintenance and operation (PL874).

The federal contributions toward school building construction and school operation in federally affected areas are modest in terms of the population which has moved in and which can be attributed to the action of our federal government. All one needs to do is to think of areas such as Oak Ridge, Tenn., and Hanford, Wash.

Private Industry at New Sites

In the cases just mentioned, the Federal Government was largely responsible for the movement of population. Often private corporations, with or without assistance from the Federal Government, move into entirely new areas. An excellent example is the Research Development Center of the Curtiss-Wright Corporation, which is locating at Quehanna, Pa., on a 55,000 acre setting of virgin streams, forests, and hills. The population per square mile in this general area has been the lowest in the entire state. This new development center will bring an enormous population into the towns within the periphery of Quehanna. First, the necessary construction crews will cause an increase in population and later, as the permanent employees move into the development, there will be much wider expansion. In such a case the closest co-operation between the school officials and the corporation is necessary in order that the school building needs may be planned properly. A number of these towns can absorb the immediate shock because they represent an area where the out-migration has transpired for a number of years. Now, however, in all likelihood the in-migration of the future will necessitate school building construction.

Movement From Cities to Outlying Areas

Another type of migration is that in which the central city area has little, if any, possibility for further growth in building construction. Accordingly, the suburban areas expand at enormous rates. For example, if, on the basis of the school census, we compare the number of children 6 to 13 years of age in 1952 with the same group two years later when they are 8 to 15 years of age, we find that the city of Pittsburgh, Pa., had a decrease of 6.3 per cent in this age group because of out-migration; while the suburban areas of McCandless Township, Penn Township, and Baldwin Township had increases in this age group of 13.0 per cent, 14.5 per cent, and 19.3 per cent, respectively.

Also, the city of Erie, Pa., provides a unique example. During recent years Erie had a greater increase in birth rate than any comparable city in the state, partially because there was room for expansion within the city limits. Nevertheless, measuring in-migration and out-migration on the same basis as Pittsburgh, we find Erie sustaining a 4.3 per cent loss but the surrounding areas of Millcreek Township, Harborcreek Township, and Wesleyville Borough had increases in the comparable age groups of 5.4 per cent, 1.1 per cent, and 6.2 per cent, respectively. The city, however, with its immense growth of the past two decades has had a planned program. During the period from 1950 to 1955 the school district constructed 93 elementary classrooms which is equivalent to from 8 to 11 conventional 8-room buildings.[5]

Movement From Older Suburbs to Newer Developments

Significant changes are not entirely within the large cities themselves. The point has been reached where suburban areas compete with each other because the older suburbs with substandard homes lose their inhabitants to the cleaner and more attractive new developments. In the Pittsburgh area, for example, in comparing the census of 1950 with that of 1940, it is obvious that school districts like Duquesne, Braddock, Rankin, and McKeesport show substantial decreases in population; whereas, areas in not too distant Brentwood, West Mifflin, Forest Hills, and Penn Township gained substantially in population. The school building problem has been most acute in areas such as Penn Township where the growth has been so rapid that planners can hardly contemplate what the needs will be five years hence.

Population migration in large cities must be studied carefully in the various sections of such cities. To illustrate, the city of Harrisburg, Pa., analyzes its school census very carefully. It has been found that the per cent of beginners in attendance areas ranged from 60 per cent to 96 per cent of the number of children born in that particular area of the city six years previous. Outgoing migration is very prevalent in some areas of the city as will be noted by these facts; whereas, in other parts of the same city the loss is almost negligible. The young couples are willing to live in an apartment for a few years but as the children begin to arrive the parents look to the suburbs for more space and a home which can often be bought with a very small down payment. Such a situation results in school building needs in certain sections of the city while the other sections may not even maintain their status quo.

Movement From Blighted Areas

The blighted areas where industries of specialized types are disappearing and where inadequate or no provisions have been made for replacements present a problem of a special type. In such cases, vacant classrooms are found and pupil-teacher ratios are much below those in other areas of the same state. Boards of education, whose members are subject to human reactions and emotions, find it difficult to dismiss teachers who have lived in the community and given valuable service over a period of years. The anthracite region of Pennsylvania is a good example of this problem. Also, it has reached the point where certain areas in the bituminous section are affected. Young people when they finish high school or college must leave their native area to seek employment. If we compare the persons 5 to 14 years of age in 1940 with the same group when they are 15 to 24 years of age in 1950, we find population losses in the anthracite counties of Pennsylvania ranging from 25 per cent to 30 per cent. Fayette County, in the bituminous region, suffered a loss of 28.4 per cent.

School districts within these areas are Winton Borough and Throop Borough in the Scranton, Pa., section, which suffered approximately a 35 per cent loss among this particular group over a period of ten years. At the same time the public school enrollment decreased from 50 per cent to 55 per cent in these two school districts. The fact that the school loss was greater than the total loss is probably due to two major causes; namely, the potential parents moving from these communities and a greater proportion of the children who are remaining in the area is attending non-public schools.

If I may dwell further on the Pennsylvania situation with which I am naturally more familiar, I should like to refer to some school districts in the Levittown area because this situation represents some careful thought and planning on the part of school and other co-operating officials. Falls Township and Bristol Township School Districts, in which Levittown is located, are worthy of consideration. In Falls Township the increase in the population of the age group which was 6 to 13 years old in 1952 was 247 per cent when they were 8 to 15 years of age, 2 years later. It could be added that for a few months this fall, until a new elementary school building and a new secondary school building are ready for occupancy,

[5]School District of Erie, "New School Constructions Abreast of City's Needs," *Erie Educator*, Vol. III, Sept., 1955.

double sessions are in operation with enrollments of approximately 1200 in the elementary school and 2500 in the secondary school, which is twice the rated capacity of the presently occupied buildings.

In Pennsylvania two important measures for determining support for public schools are property valuations and average daily membership. In Bristol Township, while the average daily membership increased 88.5 per cent over a two-year period, the assessed valuation upon which local taxes are assessed increased 167.7 per cent; the market value, which is used in determining state reimbursement to school districts, increased 161 per cent. Falls Township during the same two-year period showed an average daily membership increase of 111.7 per cent, an increase of 207.1 per cent in the assessed valuation, and an increase of 376.9 per cent in the market value. It will be noted that property valuations increased more rapidly than the school enrollments. Other areas confronted with the same problem might well emulate these districts in this highly populous area of Bucks County, Pa. Too often, assessed valuations and market valuations do not keep pace with the growth which a mobile population effects in a community.

Interstate Population Mobility

Practically no mention has been made here of interstate population movement. States such as California, Florida, and Texas have received terrific impacts, especially from certain of the midwestern states. It is almost impossible to apprehend how a school building situation can be met in a place such as Richmond City, Calif., which in 1950 had a population of 47,991, an increase of 196.3 per cent over the population ten years previous. Fort Lauderdale and Gainesville, Fla., doubled their population between 1940 and 1950. Grand Prairie, Tex., expanded from a population of 1595 to 14,594 in a ten-year period, or an 815.0 per cent increase. Spots in the east which had severe impacts due to population mobility are Hempstead, Long Island; the Baltimore area; Alexandria, Va.; and the suburban boroughs in Montgomery County, Md., adjoining the city of Washington, D. C. These are but a few of the examples of America on the move.[6]

Public Enrollment to Nonpublic Schools

No treatise on population mobility as it affects school building needs can be complete without taking cognizance of the movement of pupils from the public schools into the nonpublic schools and the enlargement of nonpublic school facilities.

In some cases pupils who are already enrolled in the public schools transfer to nonpublic schools as facilities become available and in addition there are those who enter nonpublic schools directly as beginners. According to the school census, only 62.7 per cent of the resident pupils in Philadelphia attended the public schools last year. The corresponding figure for Pittsburgh was 60.8 per cent. To illustrate further, "The Forty-ninth Annual Report of the Catholic Schools, Diocese of Pittsburgh, for 1953–1954"[7] reports approximately 60 new classrooms had to be added to existing plants for the schoolyear 1954–55. In addition, 13 new schools were opened. Of this number, 11 were located in parishes which never before had a Catholic school. The Diocesan Report indicates that the original enrollment of 2332 in these schools will increase to 7500 five years later when the full program is in effect.

Another diocesan report for the Philadelphia Diocese in September, 1955,[8] reported 10 new elementary schools and five diocesan high schools in operation for the first time. One of the high schools anticipated an enrollment of 1300 pupils.

It certainly behooves public school officials to confer with nonpublic school officials to ascertain the expansion program contemplated, if any, by the nonpublic schools. Unless this is done, it is entirely possible that both groups may be constructing classrooms for the same pupils.

Suggestions and Summary

In summary, no panacea can be provided for determining population mobility or for the method by which educational needs can be met as a result of this extreme condition which seems to have presented itself within the past 15 years. Obviously, however, the situation exists and must be approached realistically and sensibly in order to prevent two extremes. Insufficient forecasts might result in catastrophic effects upon the future educational system of our country due to lack of school facilities. Conversely, reckless forecasting could lead to an unnecessary burden on taxpayers who indirectly carry the financial responsibility for all school buildings. Therefore, it behooves all who are aware of the facts to try to bring to the attention of the American people that the problem is serious and that it is to the advantage of every citizen, whether his capacity for co-operation be large or small, to do what he can to assist those who are immediately responsible from an administrative point of view. The following few items which might contribute toward a solution are considered sufficiently important to be mentioned at this time:

1. Every school district should maintain a carefully conducted continuing census from birth to at least 18 years of age.

2. Careful analysis of the school census should be made, such as was cited for the city of Harrisburg, relative to the rate of mobility in various areas of the same city so that school building needs can be planned several years in advance.

3. In those states where a good continuing school census is required by law, including that for pre-school children, school officials can alleviate the work by forwarding the continuing census cards of pre-school children as well as those for children of school age, when families move from one school district to another. Such a voluntary exchange of records makes it much easier to determine school building needs for the future, as they are influenced by the mobility factor.

4. Public school officials, in planning educational needs, should work closely with the nonpublic schools in order to learn of their program for expansion, if any.

5. Because of the fact that school building construction under the law, even with the most optimum conditions existing, requires several years from the planning to the occupancy stage, agencies such as local chambers of commerce and manufacturer and trade associations should be urged to consider it one of their duties when contemplating new industry or expansion to keep school officials informed of such facts as the following: the approximate number of families who may move into the community; the average general income of such families so that it can be anticipated in what area of the school district they may dwell; and some conception of the general age level of the people so that school officials might have some idea of the school population which should be expected. The State Department of Education, State Department of Commerce, State Chamber of Commerce, and the Manufacturer's Association in each state should combine their efforts in this direction so that some over-all plan might be developed where school officials, at least within a state, could be kept informed of population on the move due to industrial development.

6. Every effort should be made in these new communities to see that property valuations and other methods for obtaining revenue for tax purposes are expanded without any lag.

7. The states should provide leadership, by way of studies indicating school population trends in various geographical areas, due to the fact that at the state level information is often obtainable which cannot be determined locally.

8. Before expanding facilities in a panic-like fashion, study must be given to the stability of the population. If the attendance areas are sufficiently large, a stagger system can be used for admitting and dismissing pupils to and from school, thereby utilizing fewer facilities over a longer school day. It might even be necessary to place the schools in operation temporarily on double sessions to use the facilities to the greatest advantage and fullest extent. Also, classroom expansion in contiguous areas might tide a school district over a temporary peak period of inflated population.

9. Even though sometimes it is difficult to get teachers to leave areas in which the school population has dwindled, the communities in which the population has increases should attempt to make teaching positions sufficiently attractive to persuade the oversupply to relieve the overpopulated communities.

[6]U. S. Department of Commerce, Bureau of the Census, *1950 Census of Population, Volume II, Characteristics of the Population*, Part 5, California; Part 10, Florida; Part 32, New York; Part 38, Pennsylvania; Part 43, Texas; Part 46, Virginia.

[7]Catholic Schools, Diocese of Pittsburgh, *The Forty-ninth Annual Report*, 1953–1954.

[8]"Diocesan Schools to Enroll Over 220,000 in September; 15 New Schools to be Opened," *Catholic Standard and Times*, Sept. 3, 1955.

A plea for "Quality with Economy" in the ventilating of modern schools . . .

Controlled Ventilation Need Not Be Costly

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This article calls attention to some of the measures which should be taken to make controlled ventilation of school buildings thoroughly effective and at the same time as economical as possible. The theme, it may be said, is "Quality with Economy." The measure of the worth of the suggestions that follow is not simply: "Do they result in lower installation costs?" — although that is certainly a very serious consideration in these days when we should all be striving to stretch the school construction dollar. The real measure is to be found in the effect these suggestions have upon improving the thermal environment of the school building.

To say that controlled ventilation systems of the past have been more costly than we should have liked them to be, and in some cases more costly than they should have been, is simply to state a fact. Overdesign has probably made the major contribution to this condition of which I speak, and the tendency to solve problems by surplus deeply concerns all who have an awareness of the value of controlled ventilation and the serious effect its overdesign has upon its use. Few people question the advantages of controlled ventilation. Many, however, are seeking ways to bring its cost within reach of all who will use it.

The Problem

Large occupancy, lighting loads, widely varying solar loads, cold downdraft from windows, radiant losses from the body to cold surfaces, ventilation for odor removal, natural cooling for heat removal, nighttime and week-end minimum temperature maintenance: these are the basic elements of the problem. Individually, and in relationship one to the other, they are important to the thermal comfort of those who use the building.

The wholly satisfactory system must adequately and economically heat all parts of the structure. This it must do in units or in sections or in whole, as the occupancy requirements dictate. It must have the needed cooling capacity through the use of outdoor air to remove heat from the building, without unpleasant air movement. It must provide warmth along the cold walls and window surfaces as is so often needed for full body comfort. It must provide just the right amount of outdoor air for odor control. These things, all of them, it must do quietly and without any attention from the teacher or pupils. The less conscious we are of the presence of the means through which these conditions are met, the better.

Five Suggestions

In the light of our present-day knowledge, many economies are possible, and the writer lists the following as a few of the major ones:

1. Make a realistic appraisal of the design temperature during the school day. Then size the ventilation thermal load (BTU) in terms of outdoor temperatures present during, say, 90 per cent or more of the school day during the heating season. On the very few days when outside temperatures fall below the usual daytime average minimum, accept a lower ventilation rate for these periods, which investigation will confirm are infrequent and even then of short duration.

2. Take advantage of the many opportunities the use of hot-water heating provides for simplification of piping. Only now is hot-water heating coming into its own in the school field. Its use, more often than not, eliminates the necessity for crawl space and/or costly pipe trenches. Now, the trend all over America is toward hot water in the school heating and ventilating plant. Such systems need not cost more than hot air and much less than steam systems.

3. Place the hot water lines on classroom walls under windows so that the heat from these uncovered lines will provide a thermal blanket between the cold surfaces and the room occupants when needed. A simple indoor-outdoor control device is all that is needed to relate the temperature of the water in these lines to the outside temperature. Through this means the thermal effect of these lines is directly related to the temperature of these cold surfaces as measured by changes in outside temperature. Moreover, at nighttime, by the simple process of circulating the hot water through these lines, we have a system of perimeter heating that will keep the building from getting too cold, and this without the operation of the heating and ventilating units for night heating.

4. Suggestion No. 3 leads to the simplification of automatic temperature-control systems through the elimination of individual or group day and night control. If and when day and night control is used, a very careful assessment should be made of its need in terms of the purpose it will serve.

5. Individual classroom vent flues are not generally needed where mechanical supply ventilation is used. The practice of adding a mechanical exhaust ventilation system to a mechanical fresh air supply system in a school building, except in instances of chemical labs, is costly and more often than not unwarranted. In a controlled ventilation system where each room has its own heating and ventilating supply unit, a corridor vent system or its like is wholly adequate.

Certainly, these five suggestions are at the best only a partial list, but they are five that no designer should pass over without a careful examination.

Much of the overdesign to which I made reference earlier takes place as the result of an unrealistic appraisal of actual outside temperatures during the school day. In the eastern Pennsylvania area, the design temperature is 0 deg F., but only on 26 days in 4 successive winters did the average outside temperature between the hours of 9:00 a.m. and 4:00 p.m., November through March, drop below 30 deg. F. The school ventilation plant should be sized upon the basis of the conditions that exist when it is in use.

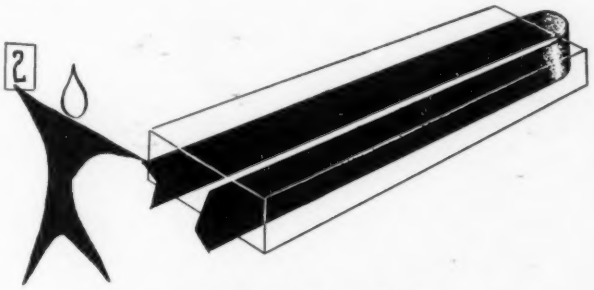
There is general agreement that the optimum ventilation rate is 10 cubic feet of outside air per minute per pupil. Yes, of course larger quantities of outdoor air are required up to as much as 30 cubic feet of outdoor air per minute per pupil for heat removal; but here we are concerned with the minimum ventilation rate, because it is only the minimum ventilation rate for which we must provide thermal capacity in the system. This thermal, or BTU capacity, should be based not upon 0 deg. F. but upon 30 deg. F. under the conditions stated. The effect of this is to reduce the BTU plant requirements for ventilation load over 40 per cent. Does this mean that no outside air is introduced when the temperature falls below 30 deg. F.? No. It simply means that a smaller quantity of outdoor air is provided during the few days in the year when the temperature does drop below 30 deg. F. Does it mean that the system does not have enough heating capacity to warm the building if the outside temperature should drop to 0 deg. F.? No, it does not, because the heating requirement of the installation is designed for 0 deg. F. But remember that a very important factor in determining the size of the heating system is the ventilation load. Indeed, in many instances it represents as much as 50 per cent of the total load. How, then, does one approach a determination of what the writer has referred to as the realistic outdoor temperature? Simply by the process of finding out from the weather bureau in the location where the building is to be erected what the temperature conditions in that area have been between the hours of 9 in the morning and 4 in the afternoon, and then size the BTU requirements for the ventilation load in relation to the facts.

An Idea Come to Its Time

Hot-water heating systems have been successfully and continuously used in America since the beginning of central heat many decades ago, but only in the past year have we started to take full advantage of the great potential in this system for simplification of piping and improvement in temperature control performance. Many of our large and important buildings in America, as indeed on the continent, have been and continue to be heated with hot-water systems. It remained, however for a development of the very recent past to bring the cost of this system below steam and, indeed, below hot-air heating systems for school heating and ventilating.

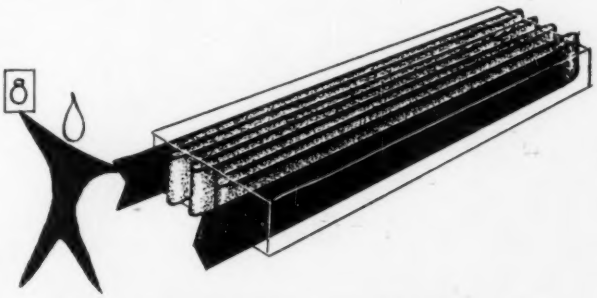
Ringing Out Process — More heat, less water.

The development of which I speak is perhaps best described in lay terms as "wringing" more heat out of water. Through this wringing-out process, the same quantity of water does 3 or 4 times as much work; therefore, pipe lines required to carry the water are only one third to one fourth as large as heretofore. The reduction in the size of the piping while very significant in terms of cost, has an added significance which extends the usefulness of the hot-water system. Now, because we are working with a very small pipe, we find it possible to run that pipe in places where a larger pipe would not fit. The recommended location is under the window sill. At this point, let's examine for a moment the means being employed through which one third the amount of water previously used will now provide the same volume of heat.



Twice through the radiator requires eight gallons of water.

In the past it has been customary to circulate, in a conventional hot-water heating system, about 8 gallons of water per classroom with a temperature drop in the water of not more than 20 deg. In this process, the heat from the water was given off to a radiator generally within a ventilating unit in which the water passes across the face of the radiator twice. A new development in this field is a unit ventilator radiator in which the hot water passes back and forth across the face of the radiator up to 8 times, and in this process 3 gallons of water with a temperature drop of 60 deg. now gives off the same amount of heat as 8 gallons of water with a 20 deg. drop in water temperature. Reducing the volume of water required for the hot-water heating system in this way reduces the size of the pipe lines by over 60 per cent of the former requirement.

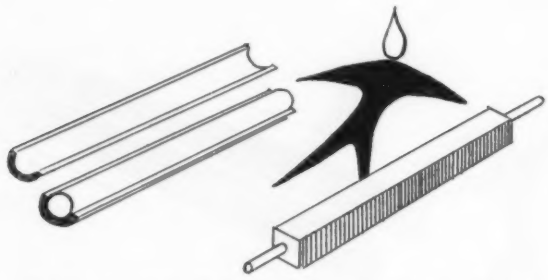


Eight times through the radiator requires three gallons of water.

Thus, in a very real sense, a great deal more heat is being "wrung out" of the water, and consequently a great deal less water is needed. With so much less water required, the size of the piping system can be very substantially reduced. As an example, now a 1¼-in. pipe is suitable for use to supply hot water for heating a whole wing of a building having six classrooms and a 2-in. pipe is large enough to furnish all the hot water needed for the heating and ventilating system in a 20-classroom wing.

Formerly, this would have required a minimum of 4-in. line.

Since we are now working with a 1¼-in. line, we find it practical to place this small pipe under the windows of the classroom. We may enclose it in a neat metal wall-hung enclosure or we may enclose it behind our storage units along the outside wall of the building, but in any event because we have reduced it so much in size we no longer must provide a special space under the floor or trench in which the heating lines may be placed. Now, because of its small size, it can hang under the windows. Here we have access to work upon it without the need for pipe trenches or excavation under the floor. Of course, the elimination of the excavation under the floor for piping or the elimination of the pipe trench has resulted in tremendous savings in building construction cost, in some cases as much as $500 per classroom.

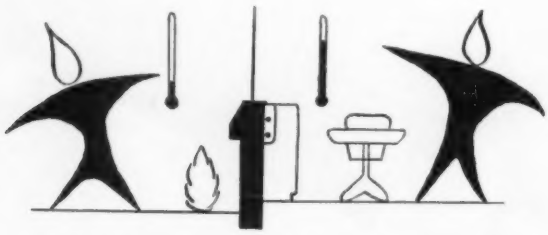


Pipe lines provided with fins protect against cold wall surfaces — saves cost of pipe covering.

When the pipe is located under the floor or in the trench, it must be covered with asbestos covering in one form or another to hold the heat in, but when put under the window it gives up its heat to serve a very useful purpose. That purpose is to protect the room occupants from the cold outside surfaces and to break the cold-air downdraft off the windows. Here is a real improvement in thermal comfort with lower installation cost.

Reduced Horsepower Required for Pumping

With this system, a ¾-horsepower motor is all that is required for a 20-classroom wing for the pumping of the water through the system. This compares with a 2-horsepower motor where the old practice of using larger water quantities is in effect. Here again we find evidence of the advantages of the "wringing-out" process referred to earlier in this article. The effect of the lower horsepower here is to reduce initial cost as well as operating cost.



Control performance improved when system water temperature related directly to outdoor temperature.

Improved Control Performance

By relating the temperature of the water that is being circulated to outside temperature, there is no risk of overheating involved. In fact, the control performance is improved for in a very real sense we relate the amount of heat we are making available to the outside temperature. For instance, when it is 0 deg. F. outside, the water circulating through the system may be 220 deg. F. When it is 40 deg. outside, this water temperature is automatically reduced to 160 deg. As the outside temperature drops our indoor-outdoor control moves the water temperature up, then down again as outdoor temperatures go up. Thus, by relating the temperature of the water to the outside conditions, we may leave the covering off our heating lines, making a very substantial saving in cost, and moreover providing heat under the windows when and as needed, all in relation to the outdoor temperature.

Each individual classroom unit ventilator is connected to the hot-water heating supply lines through individually controlled automatic temperature control valve actuated by the room thermostat. Thus, we have available individual room control in addition to the outdoor automatic control means. All of this brings us complete automatic temperature control in its simplest possible form, for only in rare and unusual cases need we provide day and night control for each individual room. Thus, the temperature control system is greatly simplified over systems which employ devices for automatically starting and stopping the ventilation equipment for night heating. In this system, the night heating is provided by the hot-water heating lines under the windows and around the periphery of the building.

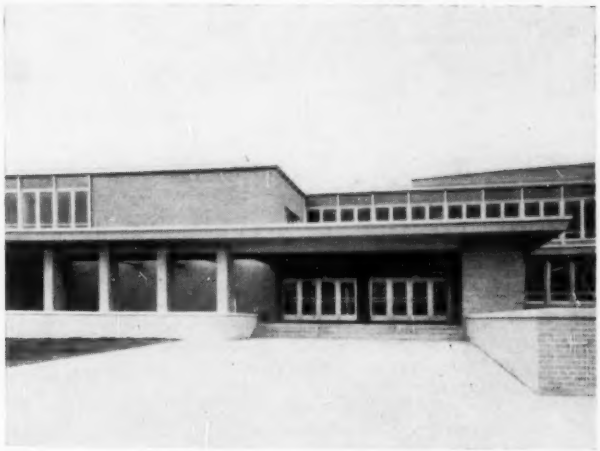
In many, many installations is has been definitely and conclusively proved that the concern for freezing water in such systems is not a valid objection to its use and in fact the safety controls that are used, including those that work in the event of current failure, are such as to satisfy the most circumspect person with regard to this subject.

Future may find chemicals substituted for water in school heating and cooling systems.

Only the Beginning

All over America hot-water systems employing small water quantities are now being used. This is quite understandable when one realizes that here at last is a means of substantially reducing the cost of the school plant while at the same time upgrading the quality of the heating and ventilating system. The interesting thing about this development is that we have by no means reached its full potential. It is not visionary to say that we shall some day find a better substitution for water as the heat transfer agent. Such a substitution may be in the form of a chemical whose properties will be such that much smaller quantities will suffice for carrying heat, and the lines that will be connected to the heating and ventilating units will be in fractions of inches rather than in inches. Moreover, the substitute for water may very well possess great potential for cooling as well as heating. To conclude that we have reached the ultimate, which of course we have not, would be to stop searching for better ways, which of course we must not.

Milwaukee's New Custer High School



WILLIAM M. LAMERS, Ph.D.
Assistant Superintendent of Schools
Milwaukee, Wis.

The latest phase of almost a century of Milwaukee's secondary school development would be a comprehensive school . . .

Milwaukee's new Custer High School is the latest phase of almost a century of high school development in the community.

In the fall of 1857, the first Milwaukee public high school opened its doors. A year later, another was added. This beginning in secondary education lasted three years, until the spring of 1860, when a shortage of funds caused the board to close both schools. Then for seven and a half years, until January, 1868 when service was resumed, Milwaukee maintained no high school at public expense. Behind the new Custer there is, therefore, 98 years of thoughtful planning and of long — even if once interrupted — development.

A passing glance at this history reveals that a high school building is more than shelter and working areas for pupils and staff. At any time it represents an expression of the thinking of many people — of the community's sense regarding the proper function of the secondary school, of the concepts of the educational staff as to what is the task of the high school for the day and time, of the board's estimate of how much of public funds it can reasonably invest in a structure. Today, as yesterday and tomorrow, a school building is the vision, the economics, public spirit,

A partial view of the long, modern front exterior of the Custer High School, Milwaukee, Wis. — Grassold-Johnson, Architects, Milwaukee, Wis.

These three floor plans offer some idea of the expansive physical layout and the extensive curriculum provided by a complete, modern urban high school.

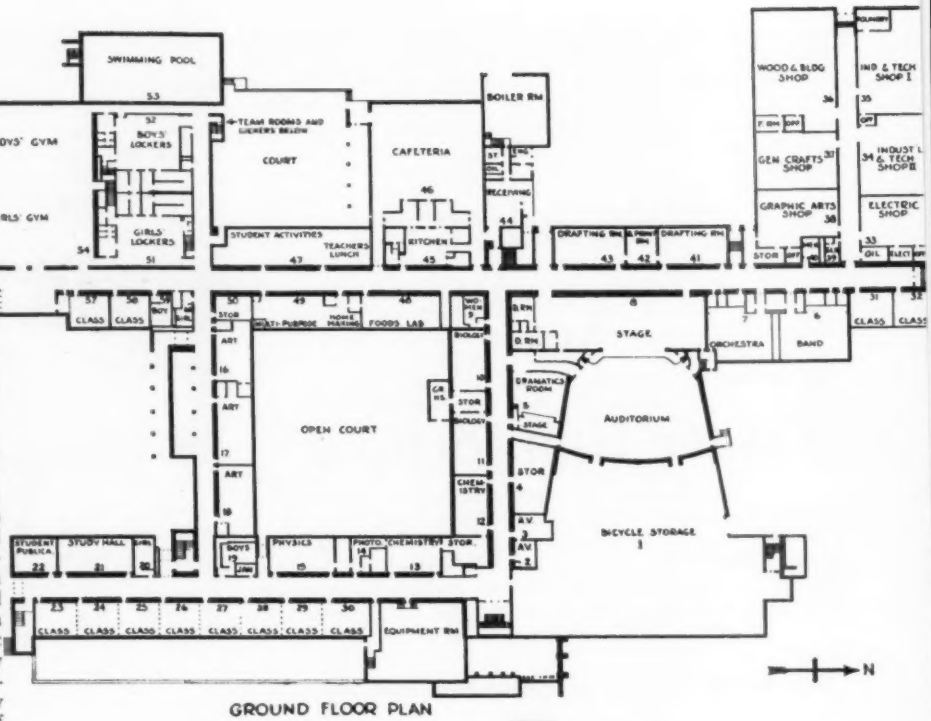
civic educational understanding of a community expressed — sometimes through compromises — in brick and stone and wood and plaster.

75 years ago in Milwaukee, as elsewhere, a public high school was a teaching unit set up to provide extended educational opportunity for those very few children who were fortunate in being born of parents financially capable of supporting them and of sending them later to a college or university. Further, to qualify for admission to such school, candidates were expected to show high capacity for mastering a curriculum heavily weighted with academic subjects. Teaching and learning were largely verbal, and buildings were classroom centered. Even 60 years ago, a total of only two per cent of the whole membership of the Milwaukee Public Schools, from and including kindergarten through the twelfth grade, was enrolled in the four years of senior high school. Inadequate as they may seem today, old high school buildings were designed functionally to house the school organizations and curricula of their day, and judged by their actual tasks, were probably very satisfactory.

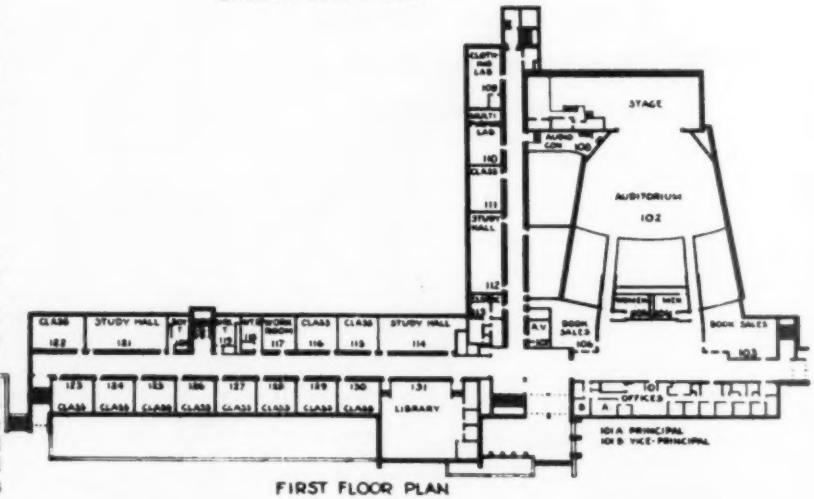
A Modified Curriculum

Then, everywhere, came the great change in professional and popular concepts of the purposes of public secondary education, with a modified curriculum to meet changing needs, and a different type of building to house the modified curriculum.

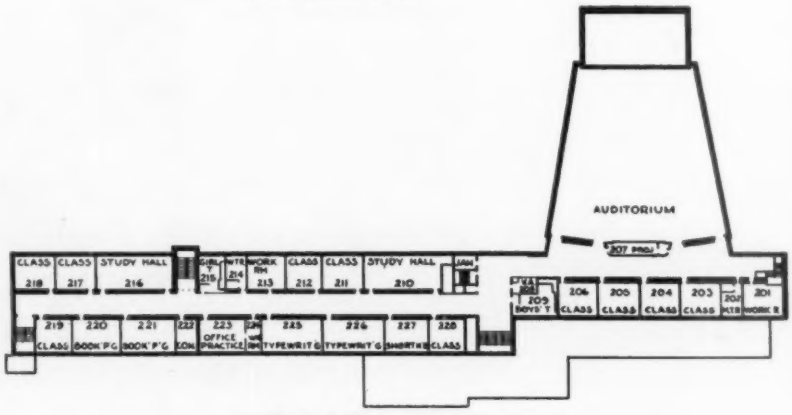
Within the past half century, the top level of the common school experience has been raised gradually from the 6th grade through the 8th, through the 10th and beyond, until now it is generally accepted that the 12th grade is part of everybody's common school. As a result, of those who 14 years ago entered kindergarten in Milwaukee, some 75 per cent are now completing high school, and each year the percentage increases. What yesterday was an academy for an intellectual aristocracy, is today becoming an upper grade school for everybody. Inevitably, then, the task of the secondary school has changed; and with it the curriculum. A few old subjects — Greek among them — have been withdrawn, and many new subjects added. Guidance was less a *must* when the student body was highly selected, and therefore homogeneous. The range of pupils' needs had greatly expanded. Where rigid prescription once obtained, election is commonplace. The constant effort is made better to serve all pupils and every pupil. Concern now is for the development of the whole child rather than for purely intellect-



GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

The fine library of Custer High School (shown in full-color on the cover) provides library facilities for every program of studies.

ual training. As secondary education in Milwaukee moved away from its old, highly academic preoccupation, effort was made from time to time to modify buildings, existing or new, in order to make better provision for the changing secondary curriculum.

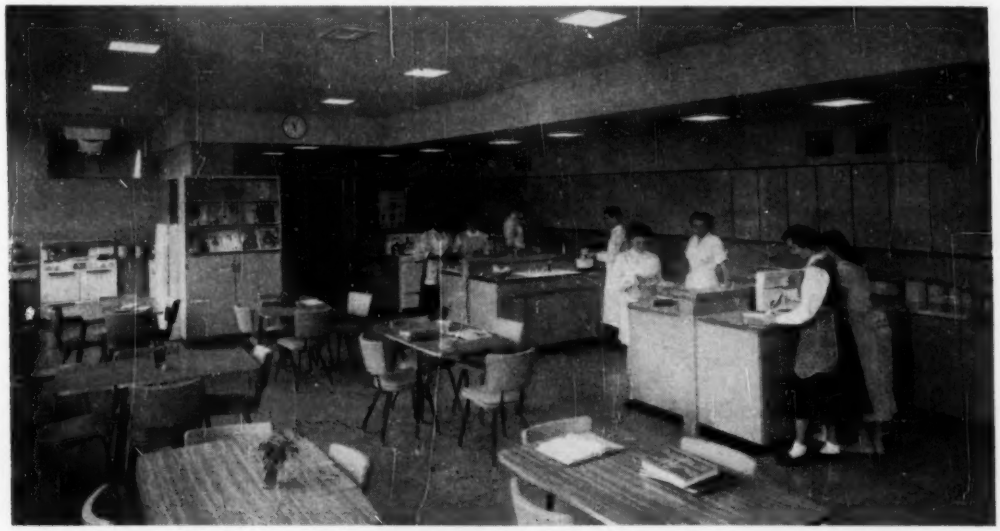
Since the first decade of the present century, Milwaukee high schools have been classified as academic, or trade and technical. The latter term, as applied to the Boys' Senior Trade and Technical High School — "Boys' Trade" — still has validity, inasmuch as the school offers courses which prepare students to enter directly into a limited number of trades and occupations. As applied to the Girls' Trade and Technical High School, with the withdrawal of such courses as millinery and power machine sewing, the term lost significance, and the school gradually became an academic high school with strong majors in foods, clothing, and commercial subjects — offerings comparable to those of the coeducational academic high schools. In June, 1955, Girls' Tech graduated its last class and its building has since been entirely converted to junior high school use.

In an effort further to provide adjustment, down into the past decade Milwaukee maintained four junior trade or pre-vocational schools, two for girls and two for boys. Only one of these, a boys' school, still remains. Broad opportunities in vocational education continue to be supplied by the Milwaukee Vocational School, a public school system which in Wisconsin operates as an independent taxing and administrative unit. Both senior trade schools also offered — and Boys' Trade still offers — academic curricula for those who wished to elect them. All this background contributes to the understanding of the new Custer High School.

The administrative-guidance area is the core of "the whole system" of Custer, intended to facilitate the wisest curriculum choice by the pupil.

Custer High School

And now for Custer itself. Some years ago it became apparent that area development and population growth on Milwaukee's northwest side would shortly produce enrollments in grades 7 through 12 beyond the capacity of existing schools in the area to handle them. The 6-year junior-senior high in the territory — "old" Custer



Male students interested in cooking as a profession will find extensive facilities, such as these modern unit-kitchens, ready to help them learn.

Custer — a high school designed to provide the kind of secondary education suited to each student's needs . . .

(formerly North Milwaukee High School) — was more than comfortably filled, inspite of the fact that most of the 7th and 8th graders of the district were being housed in their respective elementary schools.

As early as 1944, the Milwaukee Five-Year Building and Future Sites Commission had called the attention of the board to this impending schoolhousing crisis. The first action of the board, setting a high priority for another high school building, was taken on December 5, 1950. At that time 15 years had elapsed since the Milwaukee schools had opened a new high school. Meanwhile, there had been notable growth in the concept that high school was for every child, and that curriculum and building must adequately implement this concept. Thus population growth brought opportunity to put into further practice ideas that had been long fomenting.

The need for additional secondary classrooms caused several possible alternative solutions to be reviewed. Some thought had been given to the advisability of establishing another boys' senior trade and technical high school. The existing Trade school lies south of the Menomonee River, which roughly bisects the city. Should a counterpart be placed north of the river? On August 15, 1951, Superintendent Vincent reported to the board that the first step toward the development of the new high school had been taken "when the architectural firm of Grassold and Johnson was selected to prepare all plans and specifications for the building," and board approval was "given to the details of the contract to be entered into with this firm. The next stop is the determination of the educational requirements for the new school. The members of the board have given much thought to this problem. Likewise, the members of the staff have spent many hours in careful study of the numerous questions involved. The latest literature in the field has been reviewed, research studies have been examined, conferences with recognized leaders in secondary education have been arranged, and visits to other cities with similar problems have been made."

Out of this activity emerged the decision not to construct a second trade school, or a combination trade and academic high school, but to convert the existing six-year Custer high school into a junior high school, later renamed the Thomas Edison junior high school, and to construct a new senior high school on a new site. This new institution was to be Milwaukee's first *comprehensive* high school. Planning for this school gradually focused around five points:

1. It would offer such educational experiences as would give all students residing in its territory an opportunity to find within it the kind of secondary education best suited to their abilities and needs. At the same time it would not duplicate trade course offerings available at Boys' Trade and at the Milwaukee Vocational School.

2. While providing an educational environment which would give each student a chance to have a successful secondary school experience, it would not sacrifice any one group for any other. While making excellent educational provision for average and slow learners, by professional design, it would provide the best possible challenges and opportunities for students of high academic ability, whether or not they planned to continue their education beyond the 12th grade.

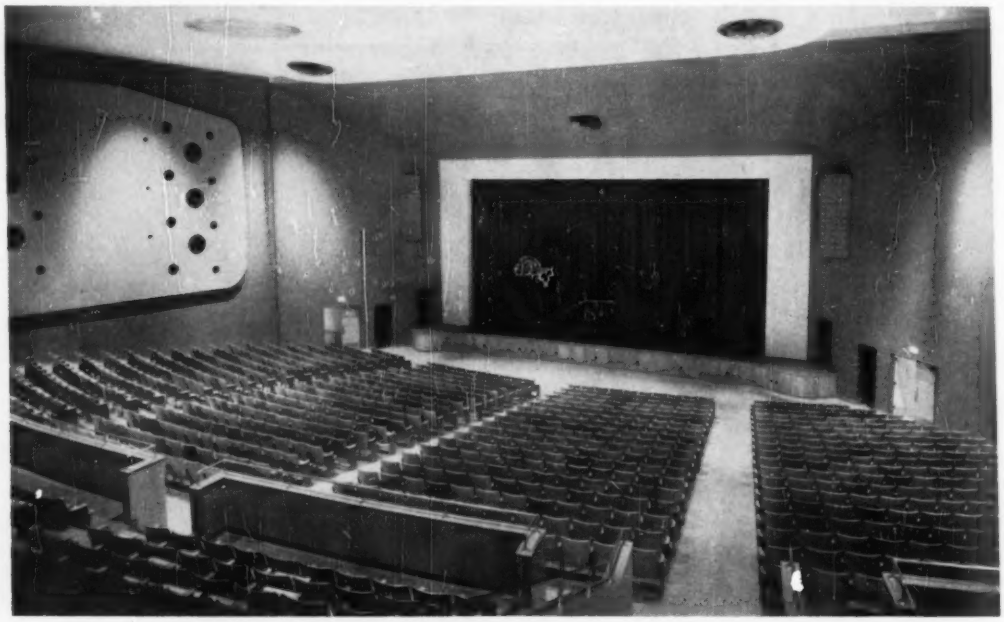
3. While it would not offer intensive preparation for any single trade or vocation, or set up experiences that could be substituted for a portion of an apprenticeship program, it would be rich in exploratory opportunities in many basically manual skills. Course sequences were to be arranged and administrative regulations adjusted so that the student would have a wide, easy, and flexible choice.

4. By housing a full academic program in the same building with a greatly expanded program in industrial and commercial subjects, academic or regular students might be brought into contact with an enriched technical program, while students in the technical program would have a similar opportunity of making a wide choice of enrichment courses from the academic program. Both groups would have the advantage of common social living and the expanded cultural, athletic, club and other co-curricular programs made possible only in a good size student body.

5. The school would strive for a high development of guidance and other activities designed to bring and keep the student into a state of continuous maximum adjustment to their opportunities.

Acquiring a Site

Even while this broad viewpoint was maturing and being refined, other activities designed to move the job to completion were undertaken. Perhaps the simplest of the early steps was the selection and acquisition of a site. A circling of existing high school buildings and a survey of the



The auditorium of Custer High School is designed to seat approximately 1200 pupils of the 1800-capacity attendance.

community to be served indicated the best location on the city's northwest side. A tract of approximately 17½ acres was acquired. Fortunately, most of this land was vacant and already city-owned by reason of tax delinquency.

A population survey of the general area for the new building indicated that in a few years provisions would have to be made for about 1800 senior high school students. It was decided, therefore, to create a building of this capacity with the possibility of further expansion by the division of certain ground floor areas into classrooms, and by the conversion of the auditorium and cafeteria to study hall purposes. To determine curriculum specifics was less simple. Again, committees were appointed, experts were consulted. It was early decided to make full academic offerings comparable in scope and quality with those provided in the existing academic high schools.

The problem of determining areas and specific courses in the nonacademic field was not so simply solved. Since most graduates of this school would live and work in Milwaukee, the characteristic patterns of the distribution of employment in the metropolitan area became a matter of moment and provoked such questions as: "In an exploratory manner, what precommercial and preindustrial experiences can most realistically and profitably be incorporated into a senior high school curriculum?" Or, rephrased, "What nonacademic learnings are available and most valid in Milwaukee today in a curriculum designed to serve the best interests of students for whom the senior high school experience is terminal education? What general areas, and within these, what specific experiences seem to promise the most important learning opportunities?"

Answers were months in forthcoming. It was finally decided that for those who planned to enter directly from school into commerce or industry, a wide variety of offerings would be made available in six areas: commercial, technical, industrial, construction, graphic arts, and homemaking and foods services.

Craft study (one of the several rooms specially set aside for this subject is shown above) at Custer is provided "in much greater variety and with improved tools and facilites" than in most schools. A typical classroom (right) illustrates the interior's "clean, simple lines."

The Planning Committee

Early in the fall of 1954, Superintendent Vincent appointed a Planning Committee of 10 administrators and teachers, with Alvin E. Westgaard, assistant superintendent in charge of secondary education, as chairman, to develop specific course offerings for the new school. The Committee included Superintendent Vincent himself, Assistant Superintendent W. W. Theisen, departmental directors Roy Radtke of Industrial Arts, Miss Florence Beatty of Home Economics, and Alfred Pelikan of Art, Arthur Kastner in charge of School Housing Research, principals Fred Ziegenhagen of Boys' Trade and Technical High School, Clayton Francke of Pulaski High School and former vice-principal of Kilbourn Junior Trade and Boys' Trade, Arthur Will of West Division High School and former principal of Kilbourn and Kosciuszko Junior Trade Schools, Arthur Showers, vice-principal of old Custer High School, and Lloyd Thomas, senior counselor at Boys' Trade.

At its first meeting, after Superintendent Vincent presented the over-all tasks to be completed in preparation for the opening of the school in September, 1955, the committee reviewed the preliminary planning which had anticipated actual construction, discussed the purposes of a comprehensive high school, and studied the blueprint floor plan of the six shop areas. Each committee member then agreed to submit to Chairman Westgaard his layout plan of courses and subject offerings to be included in the industrial and technical areas of the school. Following receipt of these individual plans, a "Planning Guide for the Opening of Northwest High School" was prepared.

To give committee members a month's opportunity to prepare course outlines for the nonacademic area, a second meeting was not called until early in January, 1955. A brief, one-paragraph description was carefully prepared for each subject in the shop program.

After meetings and conferences with teachers and principals over a period of several months, the Planning Committee prepared and published 5000 copies of a "Custer Senior High School Manual of Information." This Manual describes the comprehensive high school; tells who should attend, and what enrollment practices and graduation requirements are; describes course offerings and credit values; gives information concerning the areas of special instruction; includes paragraph descriptions of Shop and Drawing subjects in the industrial and technical areas, and of special elective subjects such as aeronautics, applied science, display advertising and model making, drawing and painting, first aid, general mathematics, home nursing, journalism, photography, etc.; and displays floor plans. It was designed to interpret the school and give needed information to pupils and parents, the community, and the general public. The foreword was written by Superintendent Vincent. The *Manual* declares:

High School is for everybody. Within recent years, completion of high school by every boy and girl has become increasingly possible and necessary. At the same time, employers insist more and more upon higher and more definite standards of training. For boys and girls, however, who cannot devote the entire time required to earn a high school diploma, special training is given in accordance with the time available. Chances for a successful occupational career are not only improved thereby, but greater opportunities for individual contribution to social usefulness are offered.

A comprehensive high school strives to afford every pupil of high school age the kind of training that best suits his needs. Because pupils differ in ability and interest, and therefore should be trained for a wide range of occupations, a comprehensive school must offer a greater variety of subject offerings. These programs of subjects give pupils opportunity not only to try out known abilities and skills, but also to discover new ones. One of the most important functions of such a school is to help the pupil co-ordinate his abilities and interests in choosing an occupation. Once this choice has been made, the school provides preparation that will help him successfully enter his chosen field.

Guidance aids wise choices. We recognize

that all schools have the responsibility to provide for pupils those kinds of instruction and experiences which enable them to choose the next steps wisely. This operates on the foundation of a group of subjects which are required for graduation because they represent minimum requisites of preparation for life. The guidance system functions through the participation of all teachers and through such methods as counseling, supervision of instruction, research, testing, placement, and social service. The whole system is intended to facilitate the wisest choice by the pupil through the high school years to the end that his immediate and future interests may best be served.

Meanwhile, the general space and arrangement requirements of the new building began to be seen when area requirements for housing academic and technical offerings were added to the needs for administrative and service areas. Months of editing followed. In addition to special features, the new building would incorporate facilities standard to any modern high school. Now followed a period of rough layouts, much editorializing and adjustment between administrative, supervisory, instructional, maintenance, architectural, and research staffs[1] in constant and the board. Final plans are shown. Spent to date or earmarked for spending are $165,208 for site, $4,622,574 for building, and $598,000 for equipment and furniture, for a total cost of $5,385,782.

Ground was broken on August 21, 1953, and by the fall of 1955, sufficient of the building was completed to permit the opening of the academic areas. By December 1, 1955, the whole building was completed, equipped, and in operation. Dedication ceremonies were held on December 4. Where choice was possible and necessary, work was pushed on classrooms rather than on the shops, auditorium, or gymnasiums, so that the rapidly expanding school populations of the district could be housed at the earliest moment.

[1]Involved, among others, in these building developments were Superintendent Vincent, Dr. W. W. Theissen, assistant superintendent in charge of schoolhousing, and the Five-Year Planning Commission, Mr. Westgaard, Arthur Kastner, and Emmett Moll, researchers in schoolhousing, Harry Weingartner, principal of the "old" Custer High School, and his successor, Alexander Morstad, Sam Sutherland and his successor, Fred Wegner, Architects and Chiefs of the Construction Division of the Milwaukee Public Schools, and many others.

Construction Materials

The building conforms to the current vogue for horizontal lines and clean, simple, functional masses. Its main corridors lie on a north and south axis. At its greatest extension it is 713 feet long and 469 feet wide. Its main front is two stories high, but by taking advantage of a downward slope of the site to the west, with a shallow well to provide added depth, it was possible to make eight additional classrooms in an area which normally would either be unexcavated or undifferentiated basement area.

The exterior is a composite of brick, glass, and aluminum, with a minimum of structural stone. Variety is given to metal wall plates which form a considerable part of the building's outer sheathing, in part by creasing them diagonally, and by using aluminum in two finishes — shiny and gun metal. Vertical architectural details rendered necessary by external and internal functional arrangements are employed to interrupt the characteristic horizontal lines and provide interesting accents. Pivoted metal sash permit windows to be washed from the interior.

The simplicity of the interior conforms to the general style, with clean, simple lines free from superfluous ornamentation. Corridors have terrazzo floors and acoustical tile ceilings. Corridors are of glazed tile with built-in lockers. Classroom floors are of maple strip and walls and ceilings are of acoustical plaster. All rooms are equipped with shades and outlets for audio-visual use. The floors of the industrial-arts shops have a grid pattern of electrical outlets so distributed that a convenient power source is everywhere available, thus permitting the free movement of machinery. Shops are divided by movable metal sheet partitions. Shop ceilings are made of perforated metal backed with acoustical material. All classrooms and special areas are equipped for visual aids, with the exception of shops. These have two classrooms equipped for audio-visual use.

Home-economics laboratories are supplied with unit kitchens. Art rooms are so laid out that all windows admit north light. The art suite has access to the closed court, with a porch to provide a work area for outside painting and sketching. A display bay affords facilities for exhibitions. Craft opportunities at Custer are worthy of serious study. While craft activities are available in the older high schools, provisions for them were an afterthought rather than part of the original planning. Custer is so designed as to offer them in much greater variety and with improved tools and facilities.

Those chiefly responsible for the final layout of the building pride themselves on having done as exceptionally competent job in providing for its internal interrelationships. As plans developed, constant effort was made to visualize services and programs in terms of the volume and schedules of traffic flow and the movement of materials, and to bring related areas together so as to save steps and time, and thus increase efficiency. Equally urgent was the desire to avoid uneconomical duplication of facilities, and to separate noisy from quiet areas. The geography of interdepartmental relationships was given careful attention. Thus, audio-visual services are stacked, with dumb-waiters to provide easy transfer of equipment between floors.

As occupancy neared, much deliberation was given to the selection of the staff. It seemed important that the principal should have backgrounds in both academic and technical education so that he could give competent leadership to both phases of the program. Raymond F. Michalak, who was chosen, possesses the necessary breadth of experience both in his preparation and in his service in the Milwaukee Public Schools. Although educated in the classical tradition, he began his Milwaukee teaching in the Kilbourne Junior Trade School for Boys, thus gaining firsthand insight into an exploratory philosophy of nonacademic activity closely resembling that which marks a portion of the opportunities being developed at Custer. Later, he served as vice-principal of Pulaski, and as principal

(Concluded on page 90)

Students in the industrial and technical areas are served by such modern, well-equipped shops as the metalworking shop illustrated here.

Co-operation Solves Jamestown's School Building Problems

CARLYLE C. RING, Ph.D.
Superintendent of Schools
Jamestown, N. Y.

The Jamestown, N. Y., school building problems, evident in 1946, will be largely solved ten years later in the fall of 1956 with the completion of three new elementary schools and the remodeling of a fourth. It takes time to convince citizens of their school building needs and to help them be ready to assume the attendant tax burdens. Through co-operation and persistence, a school building program has been accomplished in Jamestown.

The co-operation has been of four types:

1. That of the staff in studying the needs, predicting the enrollments, and planning the desired buildings
2. The architects and engineers planning co-operatively with staff and citizens
3. The citizens in studying the needs and "selling" the program to the voters
4. Other government agencies.

A brief analysis of each type of co-operation will follow a brief historical statement.

History of the Program

As World War II came to a close, Jamestown, in company with most of the other cities of the country, realized that a sizable school building program would have to be launched to meet the needs of increased enrollments and the replacement of obsolete buildings. It was history repeating itself, for the close of World War I had brought about new and additional facilities for the elementary schools, the organization and building of three new junior high schools, and a new senior high school within a period of 15 years. Then, there was a period of little building activity during the late depression years and the war years. In 1946, the retiring superintendent recommended to the board of education a building program in the elementary schools.

The new superintendent found this to be a major problem, one which could not be postponed, if federal aid for planning was to be obtained. A staff committee went to work immediately to study all existing buildings and to suggest areas for long range study with federal funds. The following is a brief chronology of the events that followed:

December 1, 1946 — Preliminary report on building needs to board of education. A total of 40 major and minor projects were suggested for further study (15 were major projects).

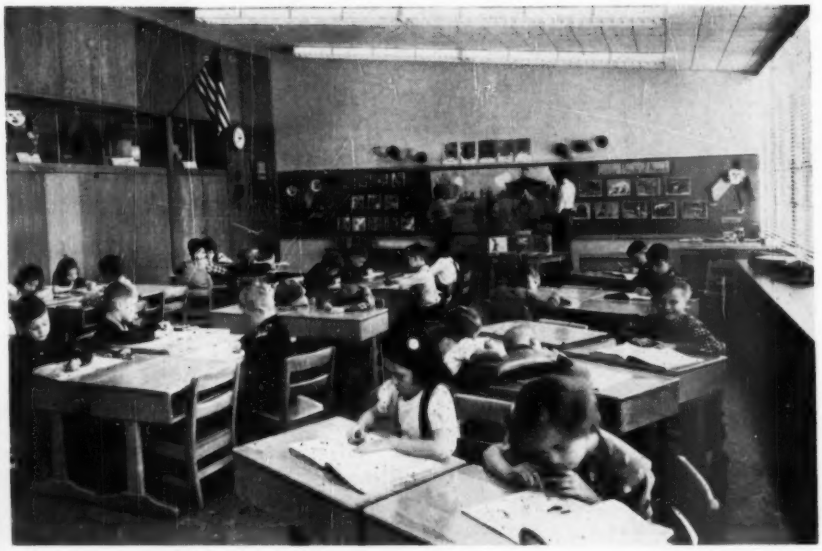
February 11, 1947 — Report approved in principle and application for federal funds made. Beck and Tinkham hired as architects to assist board and staff.

Spring of 1947 — An allocation of $164,500 was made by Federal Government for planning of 15 new building and remodeling projects for all the schools of the city.

September, 1947 — A staff, including classroom teachers, began work with architects on specific needs and plans for new schools.

	Originally Proposed in 1950 Defeated Nov. 21, 1950		Revised Projects			
Projects	Capacity	Estimated Costs	Capacity	Costs	Date of Completion	Future Plans
1. Southwest section-George A. Persell School	600 pupils 20 rooms	$825,000	600 Pupils 20 rooms	$972,551	Sept. 1954	Continued partial use of Charles Street School
2. Willard Hill Section-Clinton V. Bush School	600 pupils 20 rooms	$825,000	600 pupils 20 rooms	Est. $970,000	Sept. 1956	Abandonment of present Willard Street School
3. North Side Section, Buffalo Street School	500 pupils 16 rooms	$735,000	600 pupils 20 rooms	Est. $995,000	Sept. 1956	Abandonment of present Dickson School and continued partial use of E. Jamestown School
4. Modernization and addition to present Euclid Avenue School	Additional 100 pupils-4 classrooms, gymnasium, & kindergarten, & modernization	$285,000	Additional 50 pupils-2 classrooms, gymnasium & kindergarten & modernization	Est. $330,000	Nov. 1955	Building modernized and usable for another 25 years.
5. Addition to present Milton J. Fletcher School	100 pupils, 4 classrooms & auditorium	$235,617				Postponed until need is apparent
6. Addition to present Fairmount Ave. School	100 pupils, 4 classrooms, & special rooms	$235,000				Postponed until need is apparent
TOTALS	2000 pupils 68 classrooms	$3,140,617	1850 pupils 62 classrooms	$3,267,551		
Citizens Public Expenditure Proposal of March 1952 - One new school and two additions - $1,250,000						

Summary of Building Projects, 1946 to 1956, Jamestown Public Schools, Jamestown, N. Y.



A typical first grade classroom (right) in one of the elementary schools constructed through Jamestown's co-operative building program. Movable furniture allows for informal seating, while tackboard and work space at far corner of room provide area for large displays and opportunities for many activities. Below: a corner of a typical kindergarten.

First house-to-house school census taken to better the basis for predicting future enrollments under leadership of Consultant for Pupil Accounting and with entire elementary teaching and administrative staff involved.

Spring of 1950 — Preliminary plans completed and Citizens Committee of 100 appointed by board of education to study these plans. Committee of Citizens recommends to board of education, the presentation of a city-wide plan for meeting elementary school needs at voters referendum in fall of 1950 to include:

Three new elementary schools of 500–600 capacity each.

Three present schools to be remodeled with additions. Total estimated cost of entire program $3,140,617 to be financed over a period of 30 years.

November 21, 1950 — Referendum by voters defeated

a) Three new schools — 3504 to 2555

b) Three additions — 3027 to 3025

The board, city, and staff immediately began new studies but also asked for advice from all concerned.

March, 1952 — A group which had opposed the new schools brought in on their own initiative a consultant for the Citizens Public Expenditure Survey of New York State to report on school needs in Jamestown. This report recommended:

a) A new 16 room elementary school in southwestern part of city.

b) Additions of 4 rooms to each of two other existing schools.

c) Estimated savings of this plan over board plan of 1950 — $1,890,617.

June, 1952 — Public Hearing called by board recommended a referendum on one new school in the southwestern part of city to be put up for referendum in the fall.

September 25, 1952 — Referendum on George A. Persell School for southwestern part of city carried 2426 to 888. Foundations for the new school were started in October, 1952. Building occupied September, 1954. Total cost — $972,551.64.

Winter and Spring of 1952–53 — Citizens of the north and east sections of the city petitioned board to reconsider their school building problems. Board suggested that committees unite and see how many voters would sign a petition for two new buildings. Group was organized entirely by citizens, who carried on their own studies and met frequently to study building and other school problems under the name of "Community Educational Planning Commission" under the chairmanship of E. Milton Johnson.

Fall and Winter — Citizens Committee presented board with petitions carrying over 3000 names in favor of referendum on new schools.

Board worked with architects, staff, and citizens on revision of original plans and sites.

Board approved of referendum at time of annual election in May, 1954.

May 4, 1954 — The referendum of two new schools carried by vote of 2733 to 763. Board agreed to a hearing on addition and modernization of Euclid School under a five year bonding program requiring no referendum. The hearing approved of the plans for Euclid Ave.

Fall and Winter of 1954–55 — Plans drawn and approved for the three projects and contracts let for these projects. Euclid is to be completed in fall of 1955 and other two in fall of 1956. Of the original 40 projects all of the minor projects have been completed. Of the 15 major projects, all elementary school projects save two have been completed. The remainder were concerned with secondary schools or administration and maintenance departments, which will be considered later, if necessary.

This completion of a long term building program for the elementary schools of Jamestown during the ten-year period has been possible through the best kind of co-operation in at least four areas. A brief description of the types of co-operation given by each group follows.

Co-operation of the Staff

The Building and Grounds Division of the Jamestown Schools, with the aid of the instructional supervisors concerned, first evaluated each of the present schools and recommended a priority list of replacements and needs.

The Pupil Accounting Division planned the first house-to-house school census, to be held in Jamestown in 1947. The city was divided into small sections and every staff member participated in this census. While at first opposed by some staff members, this first census proved to be a fine way to get to know the school district better. A follow-up census has been taken each third year — in 1950 and 1953. From these accurate figures very satisfactory predictions of school enrollment up to 1965 have been possible.

Committees of elementary teachers were established to work with the Elementary Co-ordinator to set up standards for the different types of new classrooms. One summer all elementary teachers were invited to write a description of an ideal classroom. Board members and staff members visited new schools to get ideas. The Buildings and Grounds Co-ordinator worked out ideas for easy and inexpensive maintenance. The classrooms and special room arrangements in the Persell School, for instance, are the results of this co-operative effort. The experience at Persell has led to changes in the two later schools now under construction. These changes in the two later schools will be listed in a second article, telling specifically of the construction of the schools. The resulting three schools are a distinct departure from existing elementary schools of the city.

Co-operation of Architects and Engineers

The ideas of the staff committees had to be interpreted on blueprints by our architects and engineers. Some of the staff suggestions were new to the architects and might have been resisted by a less understanding organization. Naturally, once the architects got the spirit of the new buildings, they had many suggestions to contribute to the plannings. There never was a time when they were not ready to throw away one set of prints and start over, if it meant a better building. The years after the first defeat at a referendum were, therefore, not lost as they gave an interval to revise and bring up to date the existing plans. Some radical changes were made during this period, including a change of site and a change from a multiple story to a one-story type of building. The State Education Department changed its requirements — lowering ceiling heights from 11 feet to 9 feet and changing lighting, heating, and ventilating requirements to make possible panel heated floors and square classrooms. Our new schools would have been far different, had it not been for the splendid co-operation of our architects and engineers.

— Joseph W. Molitor

Another typical elementary classroom in the Jamestown school system with tackboard, cupboards, and shelves.

Co-operation of Citizens Groups

Perhaps the most important factor in "selling" the program of new elementary schools was the co-operation of lay citizens groups. From the very first, the Parent-Teachers groups were on committees studying and planning the new schools. From the beginning, it was apparent that further lay co-operation was necessary, if we were to have successful referendum. There was, at first, a natural resistance on the part of board members to the suggestion of lay planning committee. Consequently, except for P.T.A. members, very few lay people were involved in the early planning before 1950. However, in the spring of 1950, such a citizens group got together on the invitation of the board, reviewed the plans of the board, approved them, and recommended that the plans be presented to the voters as a total unit. Although this group worked faithfully, the referendum was defeated in November, 1950.

From this point on the board waited for citizen reaction and initiative. Some of the original lay committee got together a small group of business and industrial men, who had apparently opposed the first proposals, to restudy the situation. This resulted in the brief survey by a representative of the New York State Citizens Tax Expenditure Survey, Inc. Their recommendation of one new school in the southwest part of the city had the endorsement of all groups, including business and industry, and the Persell School was voted by a large majority in September, 1952.

Immediately after this, a spontaneous demand for two more schools on the north side and east side resulted in a truly lay committee. This committee first had to convince the board that there were enough people in the city interested in these new buildings to bring success in another referendum. This they did, and under their leadership, the final referendum in May, 1954, was successful by an even larger majority.

Citizen co-operation had thus brought about the major portion of the original 1950 program. The board, at the insistence of an active citizens group, also voted to remodel the Euclid School on a five-year bonding program which required no referendum. Co-operation brought success.

A play-area shared by two kindergartens in a Jamestown elementary school.

Co-operation of Governmental Agencies

The Buildings and Grounds Division of the New York State Education Department gave yeoman service in consulting with the board, staff, and citizens at all times. These schools are financed entirely by local tax funds and without any state aid, but full co-operation from the state was always available.

Jamestown was fortunate to get federal funds for the original planning. This made possible tangible plans to discuss with citizens and voters.

While the school board is fully independent from the city government, the city was most helpful in helping the board acquire property and in sharing the costs of streets, sidewalks, and curbs.

Co-operation, which was at first slow in developing, has been the most important factor in bringing the elementary school building program of Jamestown to successful fulfillment.

(A second article by Dr. Ring describing the completed Persell School, Jamestown, N. Y., will appear in the February JOURNAL.)

Junior High School Shops Are in the Spotlight Now

JOHN CLAUDE
Special School Representative
Delta Power Tool Division
Rockwell Manufacturing Company
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Of particular interest in the over-all field of school planning at this time is the planning of junior high workshops.

With the bulge in school enrollment, which followed World War II's swollen birth rate, now climbing toward the junior high age level, the spotlight across the nation is now on new building and remodeling programs in the junior high and high school field.

Since industrial-arts programs at the junior high level have reached a high stage of development along many different lines in various communities, there is considerable diversity of opinion as to what they should include.

Most authorities agree, however, that a high degree of specialization is impractical at this stage — as is the use of a large proportion of relatively complex equipment. Most feel that the junior high shop should be designed primarily to give each student a taste of many crafts and smattering of many skills rather than to attempt to impart a thorough knowledge of any one of these.

A Preparation

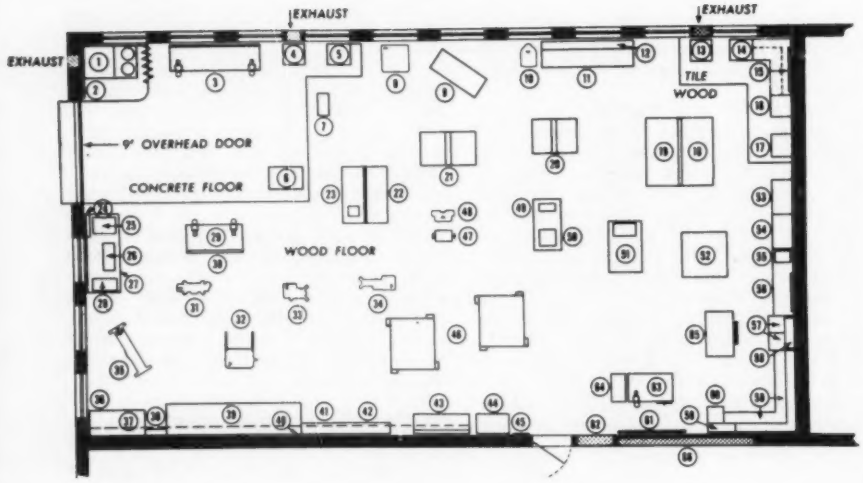
As a result of this "cafeteria" approach to industrial arts, the experts reason, the junior high student may acquire not only adequate preparation for shopwork at the high school level but also an established preference for certain types of work — a preference which will help him choose fields of specialization later on.

Aside from this one major earmark of Junior high shop planning, planners in this category usually adhere to a number of generally accepted basic principles underlying all current school shop planning. These can probably be summed up as follows:

1. Shops must be designed to meet community needs in accordance with educational objectives.

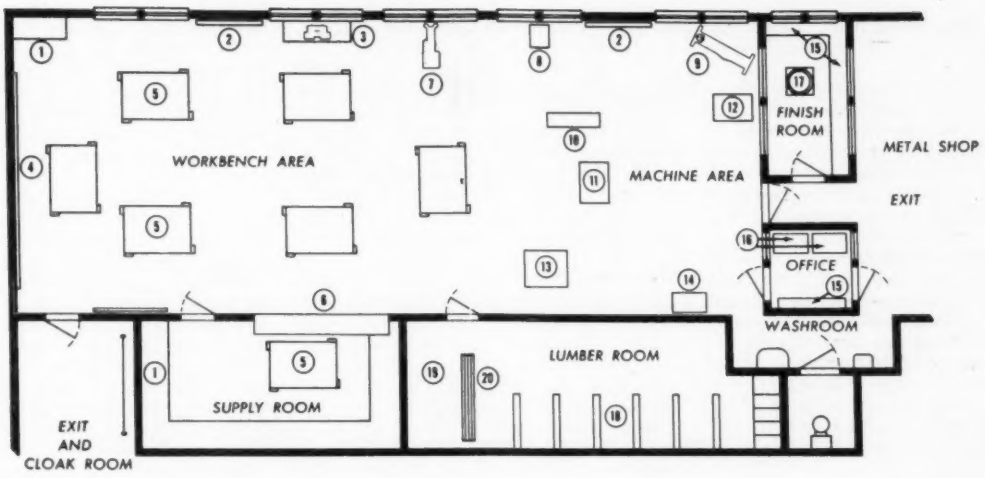
2. They must be planned to allow for future expansion with a minimum of "brick and mortar" additions — and also to take care of today's rapidly increasing enrollments.

3. The amount of shop space per pupil must be determined on the basis of the type of work performed in the shop — with an absolute minimum of about 75 square feet for each pupil and an "ideal" minimum of 100 or more.



Plan No. 1. THE COMPREHENSIVE JUNIOR HIGH SCHOOL SHOP

1. Welding Bench
2. Tool Panel
3. Trans. Bench
4. Forge
5. Foundry
6. Movable Test Engine
7. Anvil
8. Shaper
9. Metal Lathe
10. Drill Press
11. Electricity Bench
12. Test Panel
13. Kiln
14. Damp Cabinet
15. Tool Panel
16. Potters Wheel
17. Sink
18. Leather Craft Bench
19. Plastics Bench
20. Type Cabinet
21. Foundry Bin
22. Art Metal Bench
23. Soldering Bench
24. Tool Panel
25. Bar Folder
26. Stakes
27. Sheet & Bar Metal Storage
28. Forming Rolls
29. General Metal Bench
30. Tool Panel
31. Jointer
32. Circular Saw
33. Band Saw
34. Jig Saw
35. Wood Lathe
36. Glue Bench
37. Miter Box & Lower Clamp
38. Clamp Rack
39. Lumber Storage
40. Project Storage
41. Tool Panel
42. Supply Storage
43. Finishing Bench
44. Sink
45. Power & Light Panel
46. Wood Bench
47. Buffer
48. Grinder
49. Stone
50. Lever Press
51. Silk Screen
52. Floor Loom
53. Storage
54. Cabinets
55. Loom
56. Tool Panel
57. Files
58. Display
59. Books
60. File
61. Blackboard
62. Display
63. Demonstration Bench
64. Folding Chair Bench
65. Instructors Bench
66. Lockers



Plan No. 2. WOODWORKING SHOP

1. Storage
2. Tool Panel
3. Grinder
4. Blackboard
5. Bench
6. Work Lockers
7. Jig Saw
8. Drill Press
9. Lathe
10. Jointer
11. Circular Saw
12. Band Saw
13. Surface Planer
14. Shaper
15. Shelves
16. Desk
17. Spraying Turn Table
18. Lumber Racks
19. Tool Storage
20. Plywood Rack

4. Safety must be emphasized more than ever before — in the choice of machines, the arrangement of traffic patterns, choice and location of electrical controls, and over-all layout of the shop.

5. Adequate power wiring facilities must be installed.

6. Shops must be laid out — with the help of experienced shop instructors — in such a way as to assure maximum supervision of all activities.

7. Adequate storage space is necessary for both raw materials and finished products.

8. Proper lighting facilities must be provided, using the advice of a qualified lighting engineer.

9. Sound control to reduce shop noises is important.

10. Cost savings in shop planning must be tempered by thorough consideration of the long-range effect of such economies. A "cheap shop" may become more expensive in the end.

Progressing from the general to the specific, let us examine the application of some of these principles by some of today's better junior high shop planners:

Curricular Diversity

As already mentioned, probably the outstanding characteristic of shop planning in this category is curricular diversity.

One shop in this category (plan 1), for example, lists metalworking, welding, electricity, woodworking, graphic arts, crafts, and textiles-ceramics. In comparison with this is a shop which lists only woodworking — and another with a relatively simple list including woodworking, metalworking, printing, and drawing. Still another adds upholstery work to the conventional crafts list.

In addition to this diversity — which extends through all shop categories to some degree — there are other important trends in junior high shop planning.

Perhaps the best way of pointing them out without running into the danger of overgeneralization, is to describe in some detail a couple of junior high shops which may be rated as "ideal."

One, for example, whose curriculum is the first described above — has won the acclaim of experts for its "proper traffic flow and numerous and adequate working areas," and is described in detail in the following:

Varied Shop Requirements

With over-all dimensions of 35 by 63 feet, the shop allots 25 per cent of this space to woodworking, a little less to metalworking and smaller amounts to foundry and forge work, electricity, crafts, ceramics, and textiles.

Many machines in the woodworking area are also used for projects in progress in adjoining areas, and shop layout has been planned accordingly: Both the scroll saw and the band saw are located on the outskirts of the woodworking area to minimize student travel; and the circular saw and jointer are placed near the lumber rack to eliminate unnecessary carrying of lumber.

Good safety factors include ample working space around the circular saw and location of the wood lathe out of aisles of travel for the operator's protection.

(Location of this lathe to receive maximum natural light from a window brings up a controversial issue: Some authorities prefer placement of the machine in such a way that the operator faces the window with the headstock to the left.)

Since a broad field of skills is covered in the metalworking section, this area is broken down into several smaller units. One feature contributing to flexibility is a movable type of metal shaper which can be pulled away from the wall to give the operator more working space when another student is working on the metal lathe nearby.

The foundry-forging section is near an outside wall which provides ample exhaust vents. The foundry bench is placed away from the furnace to enable students to ram up molds while the furnace is in operation.

Since much of the project construction in electricity is done at the woodworking benches, there is only one bench in the electricity area itself. A test panel is mounted on the bench, and storage space is provided underneath.

Only one bench is devoted to crafts, leatherwork, and plastics because craft work is usually a minor field in a general shop program.

Ceramics and textile areas are also relatively small but adequate for a general shop of this nature. The ceramics area is located next to an outside wall to provide for convenient removal of exhaust gases when the kiln is in operation. Space for one large floor loom has been provided in the textile area, and there is also a bench loom for small projects.

Woodworking Arrangement

In marked contrast to this highly diversified shop is another in the junior high category which limits itself to woodworking alone (plan 2). The common ideal of diversity is not entirely ignored, however, as the unit shop provides instruction in a reasonably wide variety of woodworking operations.

But intelligent arrangement, rather than broad curriculum, is the particular forte of this shop.

The aisles are exceptionally wide, allowing at least four feet of travel space between most machines. Students can easily move in groups from the workbench area to various machines, which are themselves well located for easy accessibility. Machines remain unfastened to the floor so that they may be moved about at any time.

As an added safety measure in this shop, a small rubber mat is placed on the floor beside each machine — with the double function of indicating the operator's position and preventing him from slipping.

To facilitate visual instruction, a blackboard covers practically an entire end wall — and a large 12-foot ruler based on a 12-inch scale is attached to one wall approximately four and a half feet from the floor.

In this "Plan of Tomorrow," ingenious provisions are made for increasing its capacity from 20 students to "28 or more" without the addition of any extra equipment for that purpose.

The planner, however, does suggest a few additions to shop facilities (shown in plan) for the purpose of shop improvement — items such as a spraying turntable for the finish room, an extra bench to be stored in the supply room for special uses, lumber and plywood racks in the lumber room and a separate alcove in the lumber room for tool storage. He also recommends larger doors at the entrances of the lumber, supply, and storage rooms to prevent traffic bottlenecks caused by difficulty in moving in and out with large pieces of lumber and other items.

Diversified Shop

Halfway between the two shops described (plan 3) in point of curricular diversity is one well-equipped shop which seems to exemplify a 50-50 compromise between a "unit shop" and a "general shop," fulfilling the basic aims of both.

In its role as a "unit shop," it places major emphasis on woodworking. As a "general shop," it offers "smaller doses" of leatherworking, graphic arts, plastics, upholstery, and photography.

By concentrating all woodworking machinery in one clearly segregated area at one end of the shop and locating the lumber and material storage room right next to it, the planner laid the groundwork for a shop layout offering excellent traffic flow and extra safety.

A rectangular bench area, adjacent to the machine area but separated from it by a wide aisle, is strategically located next to the finishing and project storage rooms in such a way as not to block easy access to these rooms from the machine area.

By this arrangement also, the bench area as well as the machine area is brought into close proximity with the lumber and material storage room.

Although graphic arts and photography are placed on the "minor emphasis" list in this shop, adequate space and equipment have been provided for both. In addition to a photographic darkroom with basic essentials, the shop has a better-than-average graphic arts area set off in a special room — out of the dust and traffic of the general shop.

Another interesting feature of this shop plan — an idea which is being favored more and more by current planners — is separation of the instructor's desk from the rest of the shop by means of a three-sided glass enclosure. The semienclosed desk is located in such a way as to offer a good view of most of the shop — particularly the bench and machine areas.

Plan No. 3. UNIT-GENERAL TYPE SHOP

1. Bench Tool Grinder
2. Belt & Disc Sander
3. Floor Drill Press
4. Wood Band Saw
5. 24" Scoll Saw
6. 6" Jointer
7. Wood Lathes
8. 10" Tilting Saw
9. Woodworking Benches
10. Tool & Supply Cabinets
11. Supply Cabinets
12. Lumber Rack
13. Photography Cabinet
14. Bookbinding Table
15. Type Case
16. Proof Press
17. Composing Stone
18. Lever Press
19. Galley Cabinet
20. Paper Cutter
21. Bookcases
22. Planning Table
23. Pull-Up Chair
24. Instructor's Desk
25. Enclosure
26. Wash Sink
27. Project Storage
28. Refinishing Storage
29. Sink
30. Glue & Stain Table
31. Tool Panel
32. Tack Board
33. Chalk Board
34. Motion Picture Screen
35. Shelves
36. Work Table

Questions for the School Planner

FRANK C. GILSON
Supervising Architect
Division of Schools Buildings and Grounds
State Education Department
State of New York

Many of us actively engaged in school planning find little or no time to put our thoughts on paper. Our seeming silence does not mean that we take all that is written as gospel truth or consider most articles innocuous at worst.

In our busy office we do take time to berate the publisher, deprecate the authors, and blame the publicity-minded architects. But we do not take the time to write constructive criticisms. With an apology for past omissions and a small one for prejudices, this article is offered as penance.

Some years ago in discussing school building economies, I used a questionnaire to present my views. This method seemed to have several advantages such as:

1. The questions are still timely although the answers may change from year to year.

2. Questions can provoke more critical thinking than dogmatic opinions.

3. I would rather question some current practices than try to prove them bad—admittedly a lame excuse, but expeditious.

It should be pointed out that the opinions expressed or implied are my own. They are not necessarily endorsed by my colleagues or the New York State Education Department.

Publications and Awards

1. Why do magazines, school and architectural, feel bound to publish articles about only the new, the freakish, the odd, the bizarre, and unusual school buildings?

2. Are not good schools of reasonable modern design, well zoned for use, constructed of durable and appropriate materials, newsworthy?

3. Should articles on school buildings and published plans be reviewed by qualified critics in order to point out faults as well as virtues?

4. Are many schools featured five years ago newsworthy today?

5. Why is it that in spite of all of the publicity given to unique schools, most school building contracts are given to architects whose work is clean-cut, well proportioned, and durable? Why then are these not published and awarded if they are so generally acceptable?

6. Why must some magazines sponsor the mutual admiration society of architects whose firms either employ a publicity man or take the time to show and write admiringly of their work? Would it not be better for publishers to seek out representative work of the whole field rather than the selective work of the few? (Any reference to architects living or dead is purely coincidental.)

7. Should sponsored competitive awards for school design be discouraged or discontinued?

8. In school building planning is it beginning to be difficult to be good?

9. Why are not published costs per pupil, per square or per cubic foot based upon the same standards in order to avoid present confusion, half-truths and misinformation, intentional or otherwise?

10. Why accept the statement of firms of architects or of a consultant that one type of building is cheaper to construct than another when there is either a lack of supporting, conclusive data or evidence to the contrary? Some examples are: (1) campus schools versus compact units; (2) cluster plans versus rectangular units; (3) single versus double loaded corridors; and (4) one-story versus two.

Educational Planning

11. Why should schools designed for California, Texas, and Oklahoma be considered right for New England or New York?

12. What is better about a campus school? Is it reasonable to believe it is cheaper when most evidence is contrary and opposed? Can any educational advantage be claimed not possible in a well-planned building with areas zoned for particular uses and age groups?

13. Does the planning of one school, or three or four schools, qualify a superintendent or a principle or anyone as an expert in school planning?

14. Is the teacher-pupil co-operative planning movement overdone? Should you hand a sheet of paper to a librarian for example and expect a good plan for a library?

15. How about the trend for bigness? Is space a cure-all for poor planning, poor teaching, and lack of program organization?

16. Can the space devoted to vocational and agriculture shops be justified in terms of hours of use and enrollment?

17. Are 100 feet plus gymnasiums too long for high school games?

18. Are we overplanning in some areas, finding later on that the special features are not used? Examples of this include, large areas of corridor display space, lounging terraces, too many music practice rooms, girls shower and locker rooms in elementary schools, etc.

Architectural Planning

19. Why plan for maximum use of natural light in northern states when 80 per cent of the school days are cloudy and artificial lighting is required?

20. Are schools able to wash and maintain such large expanses of glass area?

21. Is there not a middle ground area in natural lighting between the extremes of all glass walls and the windowless classroom?

22. Does not the decline in use of clerestory lighting prove that the struggle for natural lighting is a losing battle?

23. Why plan out-of-doors classrooms, terraces, garden plots, built-in flower plots for schools closed from June to September in colder climates, when evidence indicates their lack of use and care?

24. When better designed fixtures are available, is cold cathode the coming thing? If not, why are several school systems giving up the regular fluorescent lighting for cold cathode?

25. Why put up with green chalk boards of metal, glass, or composition when black slate blends with any room color scheme, provides a better writing surface, is more durable and easily maintained?

26. Should we experiment with entire school buildings with luminous plastic ceilings, plastic exterior skin or other untried materials?

27. What has become of the widespread use of glass blocks for classroom lighting and why? Of bilateral lighting?

28. Are we also finding a trend for other floor coverings than asphalt tile?

29. Are many schools planned with little regard for the usual kind of custodianship and the usual haphazard maintenance program?

30. Are these dream schools planned for model children, superior teachers, and for June days instead of the average run of pupils, including the vandals, the average teacher including the lazy and the unimaginative, and the average day including the wet, the cold, the dark and the dreary?

Grandmother used to say, "it is better to be good than clever." This may be solace for mediocrity—a sop for the dull—but it neither condones stupidity nor overrates individuality. Perhaps this quotation could be a guide in school planning.

School buildings last and are used on the average for at least fifty years. Should we not therefore plan so that these buildings will be in good taste and last their time with a minimum of upkeep? Certainly school building architects should avoid fads in design which are temporary and details which have not been proved sound and durable.

In conclusion, my last question is, will your 1955 model be considered good in 1975—will it stand the test of time?

A view of the rustic setting of the San Lorenzo Valley High School, Felton, Calif. — John Lyon Reid & Partners, Architects, San Francisco, Calif.

Solving a Critical Schoolhousing Situation

EUGENE HASKELL
Superintendent, San Lorenzo Valley Unified Schools
Felton, Calif.

A close-up view of the San Lorenzo Valley High School exterior, showing its extensive use of native woods in a ranch-style architecture.

A community's ideals, nobility, and weaknesses make the story of improving schoolhousing a stirring human drama. It is often the story of the development of a people. It was such in our case.

Our schoolhousing problem was critical. Three small, antiquated frame buildings housed the students of the Boulder Creek Union High School district. These buildings had been declared unsafe by the State Department of Public Works. Ever mounting school taxes stood at $3.16 but still were not high enough to provide adequate schooling, and certainly not enough for a new high school plant!

Enrollment was dropping, as a large part of the district had been lost by being annexed to the neighboring city school district of Santa Cruz. This not only reduced enrollment but assessed valuation thereby dropped a whopping one third to $12,500 behind each high school pupil.

Wanted! A New High School

Never was a new high school plant more needed! The main building, constructed in 1905 with three upstairs classrooms and lavatories in the semibasement below, had been remodeled to include three cramped, inadequate classrooms in the semibasement. Heavy winter rains brought water flooding into these rooms, creating — among other

Laminated wood arches form an interesting pattern in the cafeteria which has three glass sides.

inconveniences — a hazard to health and safety of students and teachers. Although one of the upstairs classrooms had been divided, there still were not the space and facilities to offer certain basic subjects, such as homemaking. This rickety building, originally planned for three classrooms, had seven jammed together in it. The gymnasium, built in 1922, was the second unsafe building. The third unit, built in 1938, was a small one-room frame building approximately 20 by 30, in which an attempt was made to offer an industrial-arts program: woodshop, metal shop, and auto shop. This plant, planned and built to accommodate 25 to 30 high school students, now has 170 junior and senior high school students packed into it.

The board of trustees had hired a special school survey team, hoping to find a solution. The 60-page report by the school survey experts from the state university catalogued the inadequacies of the educational program, the deplorable state of the buildings, the hopelessness of trying to finance new buildings with the extremely limited resources of the district. They predicted a decrease in the population of the valley, one of their grave errors borne out by the passing of the years. What did they recommend to solve the problem? Discontinue the district as an independent unit and send the children to school in the neighboring city of Santa Cruz.

Needless to say, the board of trustees and community had no stomach for such a recommendation. The fee paid to these experts was doubtless the most reluctant $500 ever paid in the history of the school district.

Apart from local pride, there were several other cogent reasons why the community felt that joining with the city district and sending the children into their schools was not the solution to the problem. They did not want their children spending from two to three hours a day on a school bus traveling mountainous, icy roads in a region where the rainfall reaches from 50 to 100 inches per season. They also felt they had no community ties with the city whereas the three principal communities located in the valley had many common ties which tended to bring them together. Geographically it made sense for the San Lorenzo Valley to be one unified school district.

The First Step

The first question the writer as newly appointed superintendent directed to the board was: "How can we ask the lower end of the valley to join with us in forming a new unified district when the present obsolete high school building is already hopelessly overcrowded?" Consolidation of valley schools would double the high school enrollment, which would double the housing dilemma. The district was so impoverished that only $92,000 could be raised through bonding for construction of a new high school. This would scarcely buy one wing of a modern high school!

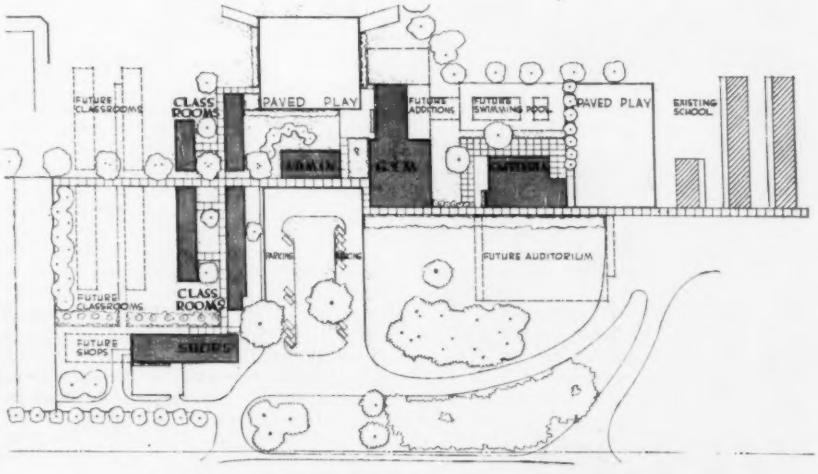
It was obvious that no piecemeal measures would suffice. Adequate housing was imperative for all students who would be a responsibility of the proposed new district. In addition, the proposed reorganization must result in a sound financial structure for the new district. With these principles laid down, the board adopted them as a basis for action.

Wanted! One Million Dollars

The million dollar question was: "Where do we find the money for a new school?" Our bonding capacity was less than one tenth of the amount needed. A former superintendent had been told by the State Department of Education that the district was too small to qualify for a state loan.

This provided a clue for making a proposal which was eventually accepted by the State Department of Education. Briefly stated, our district agreed to initiate a study of the feasibility of consolidating with the other districts in the valley if the State Department of Education would approve our application for state building funds. The State Department agreed to this proposal and steps were immediately taken to process our application. Many pressures by vested interests and neighboring school districts were brought to bear on top state officials in opposition to our application. By agreeing to the reduction of some $100,000 in the amount of the funds, however, we were finally apportioned funds for the construction of a new high school.

The allocation stipulated that we must bond ouselves to capacity and contribute these bond funds to the amount needed for building the plant. This was the basis upon which all state loans were granted to school districts. An election called to approve the issuance of $92,000 in high school bonds and a like amount for the



The site plan of the San Lorenzo High School, illustrating the new classroom, shop, and auxiliary units (in shaded areas) in relation to the older buildings.

elementary school district carried by a wide margin. We had negotiated the first hurdle!

To Be or Not To Be

There had been two elections in previous years attempting to enlarge the district; both were defeated. It became clear that any attempt to consolidate the schools of the valley was predestined to defeat, because there was no law covering consolidation cases and districts exactly like ours.

The next step, therefore, was to change the law itself so that needed school elections such as ours could be held. It took several anxious months of coaxing, compromising, and literally pushing the needed measure through the various committees and chambers of the state legislature.

The bill reached the desk of former Governor Earl Warren for signature. At this point we almost lost the new high school. Two communications had come to the governor at the last minute advising him to veto the bill. The communications came from the State Department of Public Instruction and from the Attorney General's Office. A phone call to the Attorney General clarified the situation for his office and resulted in removing his objections. But the State Department of Education remained unalterably opposed to the measure. Under the heavy pressure of this opposition the assemblyman representing our district, who had authored the bill, withdrew his support. A veto seemed certain.

A congratulatory phone call from the local newspaper the next day informed our board the governor had signed the measure which permitted us to hold the election. The governor had commented that unanimous passage of the bill through the legislature was to him a clear expression of the will of the people, with whom he must keep faith. The second major hurdle had been cleared! The people had been given the chance to vote for improving their school.

Losing Friends and Winning Elections

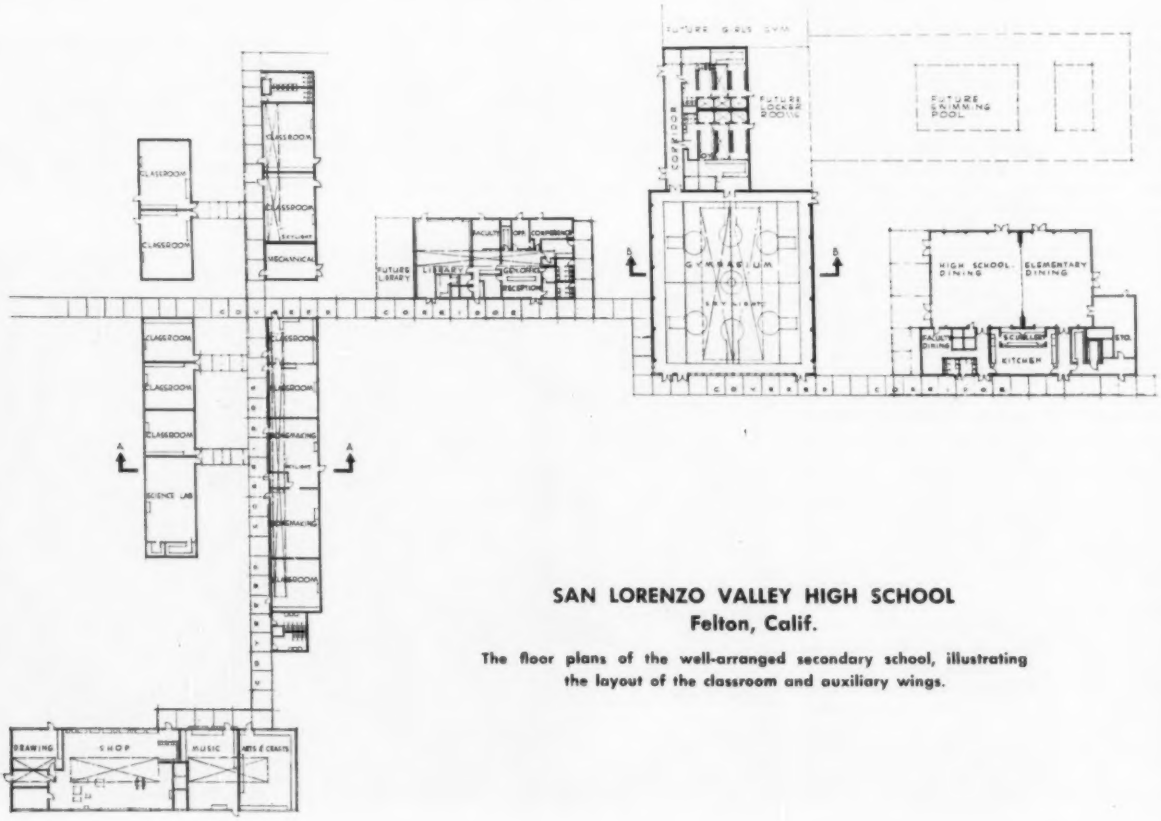
The new measure provided that a unification election might be held if the proposal received a favorable vote by the local county committee (set up to study the relative merits of the unification plan) and if approved by the State Board of Education.

The local county committee on school district reorganization was composed of five elected members of the boards of trustees of the districts included in the study. After a six-month study covering every aspect of the proposed unification plan, the county committee voted 7 to 1 in favor of submitting the question to the voters — and so recommeded to the State Board of Education.

At the next meeting of the State Board of Education, unanimous approval was given for holding the election in spite of the vigorous opposition of the State Superintendent of Public Instruction. He and his staff were of the opinion that school taxes would soar to a $3.50 figure and that we should be unable to finance a new school building program. (Happily, our tax rate the first year of unification dropped from $4.12 to $1.93. And the district still has a sizable "nest egg" in bond funds.

We had at last won the right to go to the people with the issue. It had taken 18 months of unremitting effort to reach this point — the election to unify — which was by far the most difficult hurdle to surmount. In order to pass, the proposition required a majority favorable vote in our district and a majority favorable vote in the area outside our district — the area that had voted against consolidation with our district two times before. Therefore, it was assumed that the greatest opposition would be met in this area. This assumption did not take into account an unexpected development in our own district.

The state standards required that the new high school be built on a site having a minimum of 20 acres suitable to the development of high school, the capacity of which might be expanded to accommodate an ultimate enrollment of 1000 students. Since the existing high school was located on a steeply inclined slope of a mountain on less than 3 acres of usable ground, a more desirable site was sought and finally located in an area being considered for consolidation with our district. It adjoined the San Lorenzo Union Elementary School — the district being proposed for unification with the Boulder Creek District.



SAN LORENZO VALLEY HIGH SCHOOL
Felton, Calif.

The floor plans of the well-arranged secondary school, illustrating the layout of the classroom and auxiliary wings.

Several months before the election it became generally known that the new high school would have to be located in the lower end of the valley. The effect of this development was to cause a widespread revolt against unification by the citizens of *our* own district from whom we had expected our strongest support. We were suddenly faced with more formidable opposition in our district than that which we had expected from the San Lorenzo Union Elementary District. The contest was on and we found ourselves having to wage a campaign on two fronts — in our district and the San Lorenzo Union Elementary District.

To make matters still worse, the opposition circulated a copy of a letter from the State Department of Education in which it was implied that we would lose the state funds recently allocated if the unification election carried. A last minute check with members of the State Allocation Board elicited the information that though by law the funds technically must revert to the state if the school district boundaries are altered, they had no intention of penalizing our district for unifying and we would see that the funds reserved and reallocated to the newly formed district if the election were successful.

This information was transmitted to the voters a matter of hours before the election — turning what appeared to be certain defeat into victory. The election carried by a majority in *both* districts! We had a new, unified San Lorenzo Valley School District.

One more election lay between us and the new school. The newly created district must bond itself to its new capacity and agree to devote these funds and the state funds to constructing the new high school. Bonds for $700,000 carried by an 85 per cent majority. In spite of sectional and personal disputes, the people as a whole had risen to seize their opportunity and affirm their determination in seeing better educational facilities for the community's children.

Planning the High School

We were now ready to embark upon the most creative stage of the program, the planning and designing of a plant to serve the secondary school needs of the community for many years to come. In selecting John Lyon Reid of San Francisco as our architect, we were fortunate in obtaining the services of a person who knew how to work co-operatively with groups and how to incorporate the ideas expressed in group thinking into sound, functional plan.

Planning involved pupils and staff members in making the school fit the needs and characteristics of youth from grade 7 through 12.

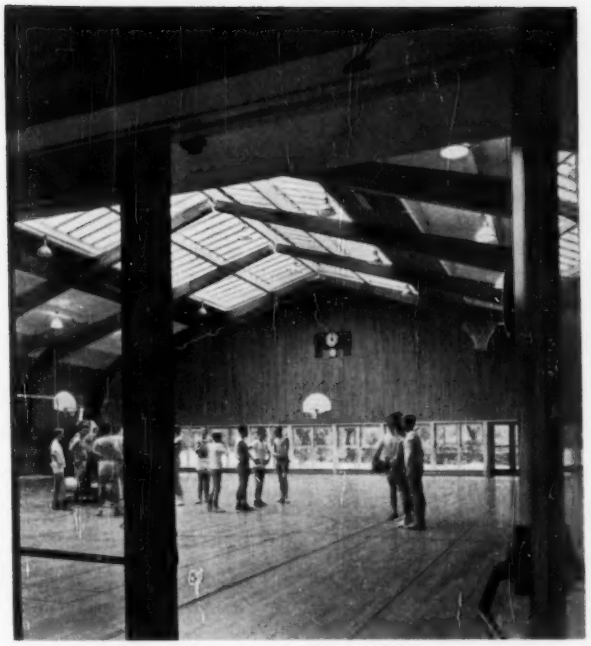
Meetings were held with citizens of the community to discuss the curriculum the school should offer. With a framework of curriculum laid out, we planned the kind of facilities needed to carry out that curriculum. Through a series of meetings, lay citizens, teachers, and architect drew up specifications.

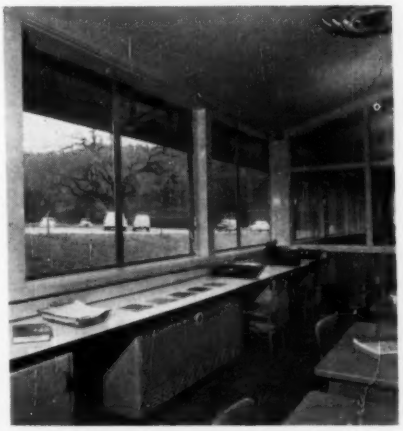
Expert advice was added by school planning consultants from Stanford University, Dr. William Odell and Dr. James MacConnell. They and their specialists in physical education, science, and other areas went over the plans.

Joint meetings were held with staff members of the State Department of Education, in which the plans were further scrutinized by various specialists, those of Business Education, Homemaking, and others.

Many months went into this process of planning and refining as those involved worked to obtain a functional, practical, attractive plant embodying the hopes and desires of the people of the valley, the needs of the children, and fitting the needs of the future. The question of cost was ever present, because the state requires districts accepting state funds to build an average-price plant.

We did not want this to be just another school building with four walls and a roof. Our school should reflect the character of the valley about it. This called for the use of woods with their natural grains as much as possible. The usual steel beams of gymnasium and cafeteria were replaced by handsome laminated arches. Natural grain hemlock was used throughout the interiors. The ranch-style architecture was used to accentuate the informal atmosphere we wanted to predominate. Glass was used wherever possible to capitalize upon the abundance of sunshine and to bring the beauty of the out-of-doors into the classrooms. The location of the plant and its landscaping were planned on three levels around a group of magnificent white oaks which provide the focal point of the campus.





The gymnasium (above) makes distinctive use of laminated roof arches and hemlock interiors. Glass on far wall is specially tempered, nonbreakable. A classroom (below) for commercial subjects provides more than adequate natural lighting.

Besides reflecting the rustic atmosphere of our beautiful surroundings, our school should symbolize the growing unity of the valley and its people. We wanted it to be an agency which would rally the people together.

The San Lorenzo Valley High School is a fitting tribute to those who had a vision of better schools for their children and labored unceasingly until their dreams became a reality.

An exterior view of the Maple Park Elementary School, Edmonds, Wash. — William Arild Johnson, Architect, Everett, Wash.

An Economical School of Concrete

HAROLD E. SILVERNAIL
Superintendent, Edmonds School District No. 15
Edmonds, Wash.

The Edmonds School District is a rapidly growing suburban area, some 15 miles north of Seattle. For the past several years, the school population has been increasing by more than 20 per cent each year. Because of this, many new school buildings have been planned and built, one of which is the Maple Park Elementary School.

From past experience in planning and constructing a number of elementary schools and additions, the school board and the administrative staff were well aware of the need for careful preplanning for the building. If a large elementary school was to be carefully done, it would require a year for planning and perhaps a year for construction. This necessitates considerable foresight, accurate population forecasting, and an educational program for the community that will help it see the coming need of the school system for schoolhousing.

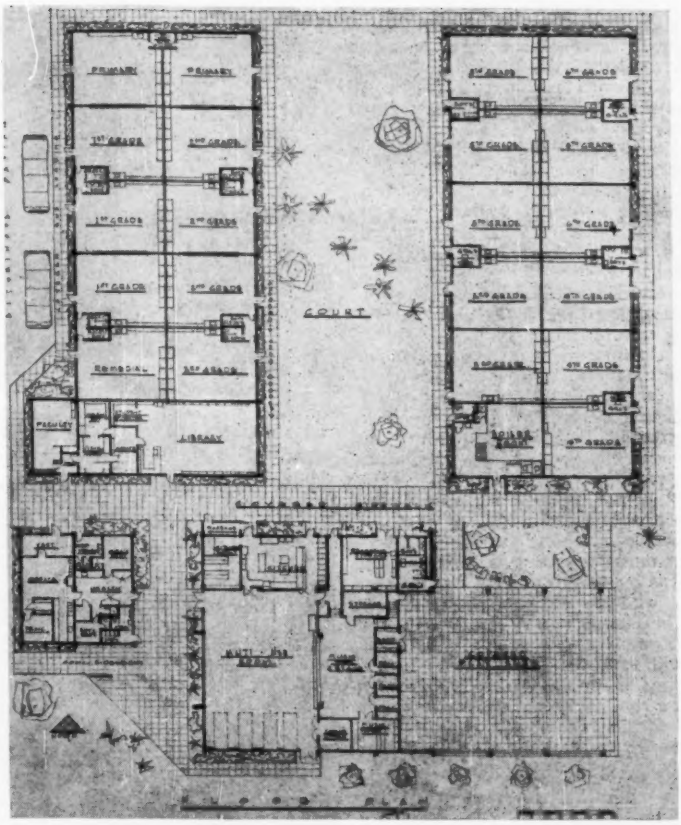
In the state of Washington, we have been fortunate to receive State Matching Monies in districts where the local area finds it most difficult to finance adequately a school construction program. Our school district has been recipient of not only finances from the State program but also has received much co-operation in planning from the State Department of Education through special consultants who care for the State School Building Program.

The attractive main entrance of the "concrete" Maple Park Elementary school

Detailed Planning

After the school board, the administration, and our Citizens Advisory Council has settled on a long range plan for school construction, and for a financial program to support that construction, detailed planning on our new schools began. Our preplanning began with a survey of our present schools by our professional staff. After this, committees were selected from the professional staff, the custodial staff, secretarial staff, administration staff, school board, Citizens Advisory Council, and the architect to work on each of four different projects of which the Maple Park Elementary School was one. These committees met at different times and thoroughly discussed the building requirements that would adequately house the educational program of the school district. All of the proceedings of these committee meetings were recorded on a tape recorder and were later edited and typewritten for each of the committee members and the architect. The architect then began his planning with a background of information that helped him

The floor plan of the Maple Park school, showing the two classroom wings, and the administrative and multi-purpose buildings



design a school structure that would adequately house our educational program.

Our school board became interested in insurance rates and in a meeting with the architect, advised him to design his buildings with the best fire rating possible for the finances available. This new Maple Park building resulted in a "Class A" fire rating, the first of such rating among our newer buildings.

Up to this time, our school district left most of the architectural design, specifications for materials, etc., to the architectural firm. However, this time, due to the influence of the leaders in the building fields and the State Department of Education, several basic educational and building recommendations were made by the school board, namely: (1) single story construction, (2) highest fire rating possible, (3) lowest maintenance possible, (4) classroom lunch service in all rooms, (5) exterior covered walkways to replace interior hallways, (6) design to meet the requirements for the State Matching Monies, (7) planning within the budget.

Under the above limited requirements, each of three different architects went to work to design a new 20-room elementary school for our district. William Arild Johnson, the architect for the Maple Park Elementary School, later presented the preliminary plans of the Maple Park School to our board of education which were quite different from his previous buildings. This new building was to be constructed of precast concrete, arranged in two classroom wings, an office building, and a multi-service-room and playshed combination. Bids were later called and much to our happiness, we found the plans made possible a very economical structure.

We have now moved into the building and we are doing landscaping that the late season will permit. So far, we have found the entire structure well suited to our educational program, and it appears at this time, that it will be one of better elementary school buildings and may be a part of the new look in elementary schools in our area for the future.

Construction and Cost Data

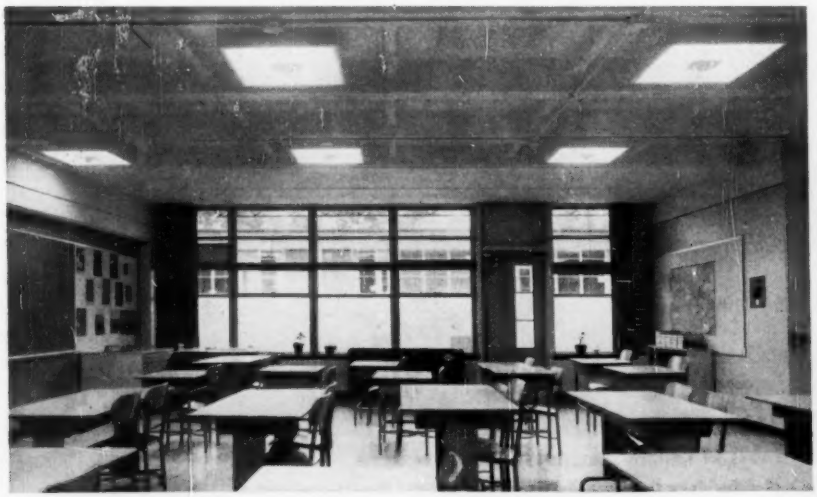
The Maple Park Elementary School was started in January, 1955, and completed for school opening in September, 1955. It was planned to house grades 1–6, inclusive. The school district operates on a 6-3-3 plan.

The site has a gentle slope and the buildings are dropped down to fit the slope. Very little excavating was required.

Maple Park is planned in four buildings. Two of the classroom buildings are almost identical, except for the library. One building contains offices and health suite and the fourth building houses a multi-use room, kitchen, music room, and covered play area.

Exterior walls are all concrete or 8-in. solid brick. The entire roof is precast beam and slab construction. It is one of the few school buildings built entirely by this method. All the beams and roof slabs were precast in the shop and assembled by derrick on the job. Assembly time was extremely rapid.

For economy, the classroom buildings were placed back to back, with no internal



A typical classroom of the Maple Park school, looking toward the window wall with its outside corridor wall

circulation. Inasmuch as elementary pupils "stay put" more of the time than high school students, the covered walkways seem to answer their purpose nicely. All walkways are of wide concrete paving and the cover is low enough to really protect the walkways. We think this back-to-back plan is very economical.

The precast slabs on the roof construction make a very nice pattern, when exposed. The concrete is merely painted; the 2 ft., square acoustic panels are set in each coffer.

The exterior walls are solid brick and are left exposed inside to make a very pleasing texture and color.

The classrooms are the self-contained type with toilets between pairs of classrooms.

Another economy we achieved by breaking up the building like this was that the need for all fire doors and fire walls was eliminated.

Supplementary daylighting is provided by the plastic sky domes. This also permits low ceilings. The average height in the classrooms is just over 9 feet. Most lighting is by concentric ring incandescent fixtures, with the exception of the library which is fluorescent.

The front entrance has a terra cotta panel with symbolic figures.

The area of the building is 41,000 square feet. The cost, including fees and taxes, is $12.35 a square foot. We consider this exceptionally low, in view of the fact that it is a "Class A" fireproof building.

The spacious Maple Park library (above), while (below) is a view of the multi-purpose room, showing the unusual pattern of pre-cast roof slabs

TWO STAGES IN THE CONSTRUCTION OF MAPLE PARK

Left: A view of the erection of the pre-cast roof slabs; right: the giant roof supports of poured concrete are held and secured in place.

Procuring Equipment for a New School Program

SOL LEVIN, Ed.D.
Supervisor, Educational Equipment and Supplies
Baltimore City Department of Education

The initial equipping of a new school building poses unique and perplexing problems to the school administrator, of which several issues, basic to the entire process, are discussed in this article.

Early in the planning stage of a new school building program, whether it consists of a single building venture or a continuous program involving a score or more facilities, the school district's officials and the board of education are confronted with the establishment of policy in regard to the determination of which items of equipment are to be included as part of the building construction contract and those to be procured under separate contract by the school administration. The points of view on this question range from the one extreme, where all equipment items, fixed or movable, directly or incidentally related to the instructional program and welfare of the children, are made part of the building contract — to the other extreme, where all of these items are purchased by the school district under separate contracts from equipment suppliers. Between these extremes are the majority of districts which divide the equipment and furniture, part included in the building contract and some items handled separately, depending on a number of factors which will be discussed later. The division is very often made between equipment that is "fixed" and that which is movable; the former group, which includes items permanently fastened to the building structure (such as, lockers and stage curtain rigging) and those items connected to electrical, plumbing, and other service outlets, is more often included with the building contract.

It would seem that the basic issues to be considered by the board in establishing policy in this matter are:

1. **Economy**
2. **Maintaining Control of Quality Standards of Equipment**
3. **Professional Growth of Staff**
4. **Means of Expediting the Building Program.**

The Economy Factor

Are there any savings realizable from the direct procurement of new school furnishings and equipment by the district as compared with the instances of their inclusion in the general building contract? If so, are the savings of significance to justify the use of the district's personnel and facilities for this purpose, disregarding, for the moment, other factors which will be discussed later? These questions must be determined by each board, because obviously local circumstances are so diverse. There is also the problem of an approach to determining whether or not a true savings can be realized. Some factors are self-evident, others can be deduced from the "knowns," but some can only be surmised.

In making a cost comparison, the first assumption that must be made is that the basic cost of the equipment under consideration is the same to the builder as it would be to the school district if it made the direct purchase. (And, according to the information furnished this writer by major suppliers of school furniture, this is generally the case, providing the specification and time of purchase are the same.) Then, on one side of the ledger, added to the base cost are the builder's overhead costs and profit along with the architect's fees which are compounded on to the total of the base cost plus the builder's mark-up. On the other side of the ledger, added to the base cost is the cost to the district to handle the procurement *to the extent that these identical services are performed by the builder and the architect*. The next operation is, in effect, a job analysis, to determine what services are rendered by the architect and builder in furnishing the equipment in order to be able to evaluate their costs to the district for its own personnel performing the same services.

Regardless of who performs the various operations in providing school equipment, in general the following steps must be taken:

1. Establishing an over-all policy and plan for crystallizing equipment needs in light of the educational program, with all of its related ramifications
2. Accumulation and evaluation of the data which represent the needs of each instructional area in terms of specific quantities of each item for each teaching unit
3. Determining the equipment needs from those responsible for general building spaces, such as offices, auditorium, and cafeteria
4. Preparing requisitions which identify the type and characteristics of the items needed
5. Tabulating quantities of each item
6. Setting up a delivery schedule which is realistic in terms of the current market for the various items, and the anticipated completion date of the building construction
7. Preparing buying specifications and advertising for bids
8. Awarding contracts
9. Following up on deliveries
10. Co-ordinating the installation of items requiring connection to service outlets with the activities of the building contractor in providing the necessary services
11. Supervising inspections of deliveries and the distribution of the items within the building
12. Following up on late deliveries, damaged items, and other discrepancies
13. Supervising the payment of invoices to equipment contractors.

The first four steps, which represent the identification of the tools required for the program, are usually accepted, as they should be, as the undisputed responsibility of the educator. The remaining steps, which are ordinarily considered as the procurement part of the "business aspects" of school administration, are the ones delegated to the architect and, through him, to the builder, if the items are included in the building contract. If the procurement of the equipment is handled by the school district, these business activities are the responsibility, usually, of the superintendent and his staff.

If values are maintained in their proper relationship, the costs involved at the professional level on which the first four steps are performed, in terms of comparative level of salaries at which man-hours are consumed, should be substantially greater than the total cost of the other eight steps.

The procurement costs per equipment

dollar of the larger school districts will generally be lower than that of those with a smaller purchasing volume. Obviously, the larger the volume, the greater should be the routinization and mechanization of procedures and, the broader the "know-how" of school equipment purchasing. If the volume justifies it, specialists in school equipment procurement are permanently employed, thus adding to the efficiency of the operation. The temporary services of educational equipment consultants could be of value to smaller districts.

The largest, and probably the only significant, single cost factor in school equipment procurement is salaries. The district can estimate the man-hours at the various salary rates and arrive at a fairly accurate procurement cost per equipment dollar expended. The accuracy would be greater if costs for several years are used.

Among the data of a study recently made of the business management of a certain city school system, it was found that among the larger cities a procurement cost,[1] based on salaries of school officials and clerks, in the neighborhood of 5 per cent of the cost of equipment purchased, was usual, with some as high as 8 per cent.

In view of the above, how do these costs compare with the costs as manifested in architect's fees and builder's mark-up on equipment furnished as part of the general construction contract?

From information available, it has been determined that generally the builders' overhead and profit will add from 10 to 15 per cent to the basic cost of the equipment, in some instances, as high as 20 per cent, depending on many factors, mainly on the competitive situation at the time. It can be assumed that the usual mark-up will be in the neighborhood of 13 to 15 per cent, which is quite a legitimate one. In addition to his usual operational expenses, the builder will attempt to protect himself against a possible rising market on future deliveries of equipment. In other words, for example, the builder is asked to submit his bid on a building which will not be ready to receive the equipment, which he must furnish, possibly in the largest buildings for as much as two years. Very few equipment suppliers will quote a firm price on deliveries that cannot be made for at least seven or eight months. If the equipment manufacturer must quote a firm price to the builder for far advanced delivery, it will usually be at a premium; on the other hand, if no firm price is quoted, the builder must protect himself in anticipation of a potentially rising market, or by accepting the manufacturers' normal deliveries and warehousing the items — in either event, the cushion would understandably be reflected in his bid to the school board.

[1]The procurement cost referred to here is strictly the cost of the business activities of the procurement process, not including the time of the educational staff in determining needs and establishing standards.

It might be mentioned that on the other hand, if the market for school equipment drops or remains stable during the interval between the date when the builder submits his bid to the school board and the date when the building is in condition to receive the equipment, the school district will obviously not benefit in these market conditions.

Another factor of importance to the builder and to the board of education in equipment cost consideration is the labor situation in a particular locality, as it is applicable in the case of equipment requiring installation to the building structure or to plumbing, electrical, or other service facilities — the fixed items referred to previously. Lockers can serve as a pertinent example. The cost of lockers without installation for a well-equipped junior high school for more than 1500 children could be in the neighborhood of $20,000; the installation cost could vary from as much as $4,500 to $2,500, depending on local labor rates and conditions. For example, if the district is buying its lockers for a new school under separate contract, in taking competitive bids, the board may receive a bid from one locker supplier who employs only union sheet-metal journeymen for the installation work, in accordance with a union requirement, and also a bid from another who uses men, who, although they have acquired much experience solely in locker erection work, do not have the full qualifications of a union sheet-metal journeyman, and hence are employed at a lower wage rate as semi-skilled laborers. Obviously the second bidder has an advantage, since the district can usually only specify in its contracts that the contractor must pay certain minimum wage rates, which may coincide with those of the various classifications of union workers, but cannot require the contractor to employ union labor or a specific classification of worker to do certain jobs.

Of course, in the case of the lockers installed as part of the building construction contract, the type of construction labor employed would generally determine the type of labor used for the lockers as well as the other equipment installations; this would be reflected in the over-all general contract bid.

Architect's fees represent a significant factor in school building construction costs, ranging from approximately 5 to 8 per cent of the construction cost, depending generally on the prevalent rates at a particular locality and the size, cost, and complexity of the structure. The equipment items included in the building contract come under the architect's jurisdiction; he prepares the "buying specifications" and supervises the installations. For his services, the architect receives his usual fee to the extent that the equipment cost is reflected in the builder's contract price.

An analysis of an actual example will help crystallize what this all can mean in terms of dollars-and-cents to a school district. The example is a junior high school building for 1500 pupils, completed in 1954 in one of our largest cities at an approximate cost of $2,000,000.

All of the instructional, service, and related furniture and equipment (fixed and movable) were purchased by the school district's business office in 1954 for the following approximate costs:

Fixed or Installed Equipment[2]

Auditorium Seats	$ 6,470
Stage Curtains	4,123
Gym Equipment	4,009
Lockers	25,000
Cafeteria Kitchen	18,000
Bleacher Seats	6,879
Art Room Cabinets	10,659
Foods' Lab Cabinets	9,422
Sewing Room Cabinets	10,545
Other Homemaking Cabinets	2,500
Science Cabinets	1,548
Science Tables	1,698
Window Shades	1,737
Miscellaneous	2,393
	$104,983
(Rounded off to	$105,000)

Movable Furniture and Equipment

For Classrooms, Offices, Teachers' Rooms, Laboratories, and all other instructional and related areas
$ 80,000 (Approx.)

Total Equipment and Furniture Cost
$185,000 (Approx.)

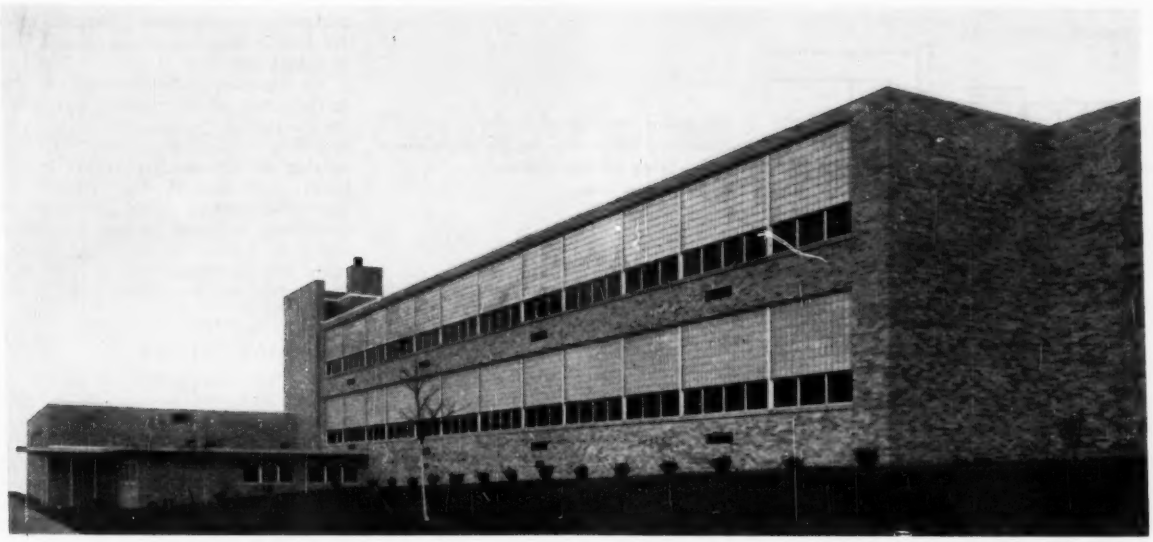
Assuming the procurement cost of the above equipment to the district to be 6 per cent, the net cost would be ($185,000 + $11,100) approximately $196,100. Or, broken down, $111,300 for fixed equipment and $84,800 for movable items.

If these articles had been included in the building contract (assuming that the basic equipment cost is the same to the builder as to the district), adding an average builder's mark-up of 13 per cent and then adding the architect's fee of 5 per cent to the total of the basic equipment cost as well as the builder's mark-up, the actual cost of this equipment to the district should be in the neighborhood of $123,582 for fixed equipment and $94,920 for movable equipment, or a total of $218,502.

In summary, under the above conditions, the district should have realized a savings of approximately $12,282 for fixed items and $10,120 on movable equipment, or a total savings of $22,402. Percentage-wise this would be approximately 11 per cent for the fixed items and 12 per cent for the movable equipment, and about 12 per cent on everything.

Dr. Levin's concluding remarks on maintaining control of equipment quality, means of expediting the school building program, labor problems, and establishing proper communications will appear in the February issue.

[2]Fixed equipment is defined as those items which are permanently secured to the building or to service outlets (gas, water, electricity, etc.).



An exterior view of the Beaver Falls, Pa., Central Elementary School, Beaver Falls, Pa. — Frank J. Dickerson, Architects, Beaver Falls, Pa.

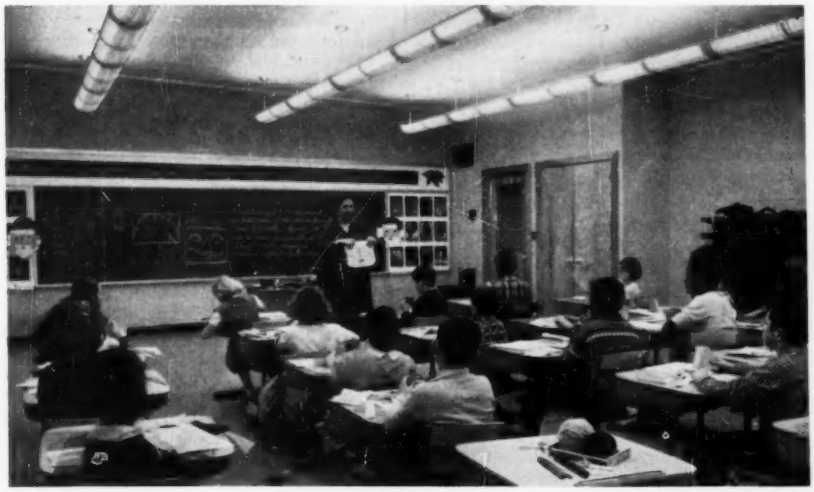
PURPOSEFUL ECONOMIES in School Building

LAWRENCE D. SMITH, Ph.D.
Superintendent of Schools
Beaver Falls, Pa.

The Central Elementary School at Beaver Falls, Pa., opened late last year, gives the community good reason for pride, particularly since it provides the first elementary facilities added to our school system in more than 50 years. To school people, the tan brick and aluminum exterior does not distinguish it from scores of other schools built recently throughout the country. However, the knowledge of what was planned and executed within can be of some benefit to school administrators and board members considering new construction.

To say that the interior is functional merely repeats what can be said of almost any new school nowadays. But, because Dr. Irving Bennett was chairman of our planning committee, function in our case goes deeper than provisions for an interior in which pupils are well and safely housed in a layout that is generally an aid to teaching. Dr. Bennett is active in the Pennsylvania Optometric Association. That society has been responsible for helping to improve the environmental standards of new and modernized schoolrooms in our state. Its program is one of co-ordinating the school's work-environment with the known physical and educational needs of young children for their optimum development. Now, for the first time in half a century, the voters had provided our board with funds for a much needed elementary school.

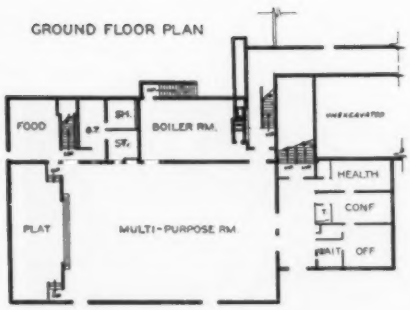
Our total funds from bond issues and school district current revenues was $618,672 to provide 14 classrooms, a multi-purpose room, faculty and health rooms, a music-art room, and the usual utility areas. This would not permit us to meet fully the standards of interiors established for the so-called Harmon "co-ordinated" classrooms. But we have attained close approximation by spending for features and equipment that have direct bearing upon the educational processes and proper physical development, while saving on factors not directly involved.



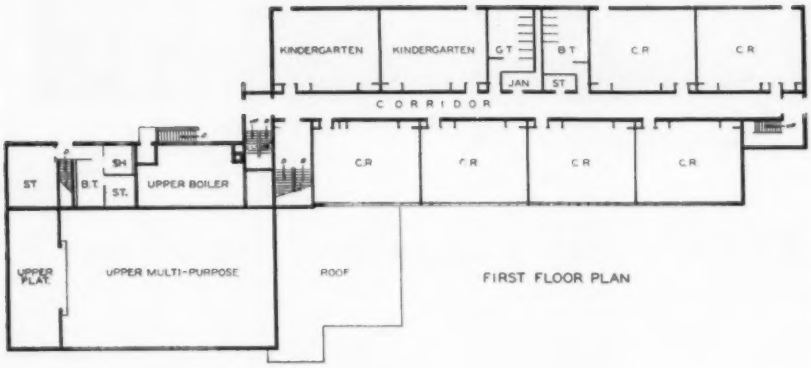
Luminous indirect lighting equipment and fully moveable, tilting desks are featured in this typical classroom of the Beaver Falls plant.

"Purposeful" Saving

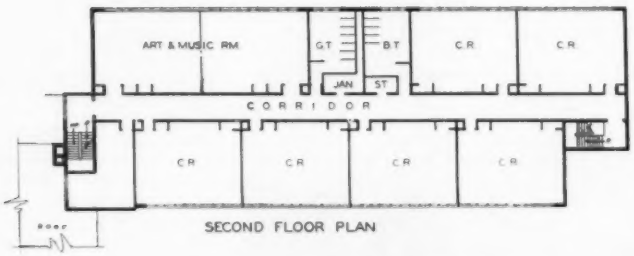
For example: inside, we utilized painted



The ground floor plan of the Beaver Falls Elementary School, showing the multi-purpose section of the building with the administrative offices



The first floor plan of the Beaver Falls Elementary School



Six classrooms, as well as a combination art and music room are provided in the second floor.

cinder block instead of smooth plaster. Experience has shown that the light pastel tinted surfaces are beautiful in their rough texture and that they wash well. We laid light colored asphalt tile flooring in the multi-purpose room, rather than more expensive wood. This has been most satisfactory in the big room, used as a gymnasium, assembly hall, play, and lunchroom. It is 70 by 45 ft. with a stage 17 by 45 ft. Game lines are inlaid in white tile. Folding tables and benches are mounted on rubber wheels to provide lunch time services for 100 of our 400 enrollment at one time. The room's 350 folding chairs are stored on trucks, so that the room can be converted into an auditorium quickly. As another purposeful economy, we planned a simple food "serving" kitchen. All food is prepared in the central kitchen at a high school.

We have vertically stacked toilet rooms in the center of the building and plumbing service tunnels between the adjacent boys' and girls' toilets. Equipment for radiant heating of the primary rooms is in the crawl space beneath the concrete floors. The total savings from these and other provisions, including savings through simplicity of design, allowed us to build and equip our *classrooms*, where children live during most of their school hours, about as we hoped.

"Purposeful" Interiors

Each typical classroom has its own work counter, sink, and drinking fountain. The white ceilings, 90 per cent light reflective, are soundproofed. The exterior walls are all east or west, of light-directional glass block above a window strip glazed with tinted glass to reduce brightness and exterior heat. The upward light from the prismatic block is co-ordinated with the 90 per cent upward component of three rows of luminous-indirect, "star" lighting equipment with separate switching to allow for variations in outside light. We provide a minimum 30 foot-candles of fully diffused light at the inside walls, and brightnesses throughout the colorful classrooms are well within standards of the Illuminating Engineering Society. The floors are of light asphalt tile with 30 per cent reflectance.

The rooms are finished in the same natural wood, dull finish, as the movable and fully adjustable desks and seats. Chalkboards are green framed with dull-finished aluminum, which is used elsewhere — all hardware. We make our own tables for all grades in the school system's workshops, metal frames with blond formica tops. Heat is provided from two gas-fired steam boilers which can be converted to oil. The temperature of each room is controlled separately and automatically. Heating outlets are combined with under-window book cabinets. Fresh air is drawn from outside into each room. School people who visit us comment upon the lack of odor of occupancy.

The music-art room is 70 by 25 ft., double the size of a regular classroom when the folding plastic partitions are open. This and the multi-purpose room have TV outlets and motion picture equipment. The assembly room has a gasoline generator added for emergency lighting. The intercommunication system reaches all areas.

The Costs

The cost per classroom in 1954 was $36,605; cost per pupil $1,400; and cost per square foot of floor area $18.20. Our experience with Central Elementary during the first half of the 1955 school year has caused us to duplicate generally the specifications for its principal features and equipment in another elementary school now on architect Frank J. Dickerson's drawing boards. We feel that to considerable degree we have attained our objective of spending selectively and purposefully to provide maximum opportunity for the children who spend so many hours within their schoolrooms.

Public Housing Projects Produce School Problems

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The prediction of future school enrollments has always been somewhat difficult, but in the post World War II period the problems have been increased and extended in scope. The birth rate, movement of population from urban areas (or migration), and construction of new dwelling units in previously unpopulated areas have been the reasons most mentioned as altering predicted population estimates and school enrollments.

In certain areas public housing projects have been a central problem. These projects have risen virtually overnight to saturate school buildings with children and exceed expected or predicted school enrollments. This problem is not at an end for some areas as the present national administration on January 6, 1955, proposed 70,000 new public housing units in the next two years.

A dramatic illustration of the effect of public housing projects on school enrollments is shown in Germantown, a peninsular residential area in Quincy, Mass. In the fall of 1950 the 400 unit state-aided Snug Harbor housing project for veterans was occupied, and by March, 1951, the preponderance of the 849 children enumerated on the peninsula were found in the housing project as there were only slightly less than 200 private dwelling units, contributing about 60 school children. This was not the end, however, as the 180-unit low rent federally aided Riverview housing project was occupied in the fall of 1952.

The completion of the 18-classroom Snug Harbor elementary school in 1952 at a cost of $716,513 for the Germantown area did not prove sufficient, for in September, 1953, it was found that approximately 80 children had to be transported to other facilities. By early 1954 it was evident that children would have to be transported in the fall of 1954 even after the completion of a four-room addition then under construction. It was at this time that the school officials once again attempted to predict the long-range enrollment in Germantown in order to aid them in deciding on the alternatives of continued transportation, additions, a new plant, or some combination of these and other possibilities. The school administration was dismayed to discover the paucity of available information helpful in relating public housing projects with school population trends. This study was made to shed some light on the problem.

The Investigation that Followed

The techniques employed for this analysis were not unique or particularly difficult to implement. It was felt, however, that the combination of approaches and the pattern of the results would help to clarify this particular situation and possibly provide some information for others in the field faced with similar problems stemming from public housing projects.

The basic data were gathered with the co-operation of the school department and Housing Authority in a census of each dwelling unit in the area. Thus, the age of each man, woman, and child in the large number enumerated was available as basic data, and it was possible with minor calculations to determine an adjusted total number of children for all of Germantown.

Some of the Findings

A table was developed showing the age of women by the number of children in the family. It was found that only a small percentage of women were over 44 years of age. The significant cluster of women was found to be under the two and three children headings. The identical information was tabulated for the men enumerated and the main difference shown was that the median age was higher for the men being 32, as compared with 27 for women. This was expected.

While the ages of adults and the average family size are important considerations in looking at expected births and future enrollments, the immediate future is heavily dependent upon the age and distribution of the children already present. Another table was compiled showing the ages of the children by the number of children in the family with the total enumerated for all dwelling units public and private. The median age of the children for both housing projects (3½ years) was below the school entrance age (5 years). It was noted that the average number of children per unit enumerated was 1.95 for private dwellings, 2.57 in the Riverview and 2.80 for the Snug Harbor housing project. This was considerably above the 1950 census figure for all of Quincy, approximately 1.20 children per unit.

With this basic data it was simple to calculate for any recent year the number of births for any particular age group of women. In Table I, the births per 10 women by age groups for 1950 are shown. The small numbers involved produces abnormally high and low birth rates for some age groups. By comparing it with the 1950 age-specific birth rate for all of Quincy, however, the figures run far higher than might be expected by chance. For example,

TABLE I. Age — Specific Birth Rates[1]
(Births per ten women for 1950)

Age of Women	Riverview	Private	Snug Harbor	All of Quincy
15–19	1.7	0	.6	.5
20–24	3.75	2.0	4.75	1.75
25–29	3.15	1.3	3.8	1.6
30–34	1.2	1.1	2.6	1.1
35–39	3.3	2.0	1.0	.6
40–44	0	0	0	.1

[1] For information on this problem, see Whelpton, P. K., *Forecasts of the Population of the United States*, 1945–1975, U. S. Department of Commerce, Bureau of the Census.

in 1950 the 20–24 age group in all of Quincy averaged 1.75 births per 10 women. Riverview averaged 3.75, Snug Harbor 4.75, and the private dwellings 2.00 births per 10 women in the same age group.

Comparison With Other Projects

An examination of the distribution of the children by age group per unit in Germantown and other housing projects gives an indication that this productivity and family size might also be a function of the age of the housing project. The Old Harbor Village and Broadway Housing Projects in nearby South Boston were selected for comparison. Each of these was constructed with state or federal aid just as the Quincy projects, and were comparable in that they had veteran preferences or priorities with low income restrictions.

Table II indicates that in Germantown in 1953 the Riverview housing project — one year after occupancy — has 1.18 children per unit under five years of age, private dwellings .61 children per unit under five; while Snug Harbor has 1:51 children per unit three years after occupancy in this age group. This is not meaningful alone, but an examination of the other housing projects offers information for comparisons.

In the 1940 U. S. Census, the old Harbor Village housing project offered data at a time after occupancy approximately equal to the present age of the two Germantown projects. As well, its development in a historical perspective can be seen by examining the same project enumerations in the 1950 U. S. Census.[2] It was evident that while the total number of children did not drop drastically between 1940 and 1950, the distribution of children became more uniform with the aging of the project and in the 10-year period was beginning to approximate the distribution of the total population.

TABLE II. Distribution of Children by Age Groups Per Unit

	Germantown 1953			Old Harbor Village		
Age	Riverview	Private	Snug Harbor	1940	1950	Broadway Project 1950
Under 5	1.18	.61	1.51	.85	.54	1.42
5–9	.68	.67	.96	.54	.50	.44
10–14	.54	.30	.27	.30	.48	.19
15–19	.16	.33	.03	.16	.30	.11
Total/ Unit	2.56	1.91	2.77	1.85	1.82	2.16

2 We are indebted to the staff of the Center for Field Studies, Harvard Graduate School of Education, participating in the study of the Boston schools, "Look to the Schoolhouses . . ." and particularly Dean K. Whitla, research director for that study, for this method. The housing project covers an entire census tract and thus complete data were available here and for the Broadway project mentioned later.

Schoolhousing plans may need drastic revision when a neighboring public housing project rises over-night

The Broadway housing project referred to in Table II was also occupied only a few years in 1950. The figures from the 1950 U. S. Census show that the Broadway Project had not only a magnitude of children but a distribution that gave a large number of children in the under five age group. The evidence presented might not be conclusive but a trend seems apparent that, as the project ages, the age distribution of children (and investigation shows this to be true also of adults) more nearly approximates the age distribution of the larger community.

Two specific factors, in addition to the over-all state of the economy, influence the rate and extent of the change toward a "normal" distribution of ages: (1) the regulation of and the compliance to the Housing Authority occupancy rules; and (2) the rate of turnover in the project. It was learned that the two Germantown projects had a turnover of about 40 families per year and at this rate could possibly have all new tenants at the end of 12–14 years. The replacement of these families with tenants, subject to the Housing Authority occupancy regulations, would tend to make these housing projects *constant contributors to the school population* after they had passed through their early growth period.

A careful analysis of many factors including the present ages of the men, the fertility rates of married females by age groups and family size, formed the basis for a prediction as to future births. The births were estimated to provide children in an age distribution similar to the surrounding private housing in the future. These predicted births together with the present school enrollment and children enumerated in the pre-school census formed the base points in predicting future enrollments.

Other Considerations

Additional factors considered before venturing a school-age child prediction were the availability of remaining home building sites, new home construction rates, the private school attendance pattern, in or out-migration in the private dwellings (it being assumed that the public units will be filled to capacity with no net-migration), retardation, mortality, and dropouts.

It was recognized that unforseen events could affect these estimates. Changes in regulations of the Housing Authority might upset predictions. A change in the ownership of the housing projects, particularly a transfer from public to private control with resulting changes in rentals and occupancy standards, could cause some modification in the composition of the families and average periods of occupancy. Further, the possibility always exists of parochial schools being constructed in this particular area, although there are no plans in the immediate future, according to Church spokesmen.

The estimated numbers of children for grades K–6 in Germantown for 1954–70 contained some interesting data for the school authorities concerned with estimating needs for a school building program. This estimate predicts that the school enrollment will range from 630 in 1953 to 1197 in 1959. Confidence can be placed in this figure as six out of the seven grade groups for 1959 are already born and living in Germantown. Prior to the housing project (1950), the section contained 60 school age children! The estimates after 1959 are somewhat less certain and the general level at which the enrollment will stabilize is difficult to predict with exactness. At present, however, an estimate of from 1000–1200 children in the K-6 grades seems appropriate, considering that a high-water mark of 1276 appears in 1960. By 1970, the school population is expected to be down to 862. This poses a real problem in schoolhouse planning.

In a situation such as this, it was recommended that the school department and the Housing Authority maintain a joint record of the number of births, the annual turnover, and the sizes and types of families indigenous to the housing project during the future. This will be a strong protection to any determination of the school enrollment. Co-operation between the two public agencies can go far to insure a judicious expenditure of tax funds for school purposes.

WILL SPEND $36 MILLION

A school construction program for 1956, costing more than $36 million and calling for 42 new buildings or additions, has been announced by Supt. Benjamin C. Willis of Chicago.

Of the 42 building projects, 33 will be financed under the $50 million bond issue approved by the voters in April. Mr. Willis placed the cost of these projects at $30,150,000. Nine other buildings, costing $3,533,000 will be financed through the building tax fund levy. The bond issue will pay $3 million for school sites.

It is planned to get all of the large projects under contract by the summer of 1956, and the remainder by late 1957. All of the schools to be built under the bond issue funds will be completed and occupied by 1958.

Classroom Toilets—An Educational Concern

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The nature and location of toilet facilities is unquestionably one of the last details which a typical school administrator will worry about in the planning of a new building or addition. Nevertheless, it is important both educationally and architecturally that these necessary facilities contribute not only toward a healthier environment, but toward a more efficient school program.

Not many years ago, it was taken for granted that there would be separate boys' toilets and girls' toilets located on various floors within the building. It was not until relatively recent times that the "self-contained classroom" idea, combined with our changing ideas of physical and mental hygiene, caused us to take another look at the old "gang toilet" and its influence upon education.

The control of pupil movement in this matter is a common problem, as it is applied to such other movements as to the pencil sharpener and visits to the supply closet and the bookcase. In the orderly routine of most schools, definite times were set aside for individuals and groups of children to visit the washrooms, presumably on the assumption that these children were so thoroughly in control of their biological schedules that the timing of such toilet recesses would be entirely suitable to meet their needs. Many an adult will testify uneasily today that difficulties concerning normal bodily functions were aggravated in their childhood by this artificial arrangement in the schools.

Today, many schools cling to this arrangement largely because the absence of conveniently accessible toilet rooms makes it awkward for many teachers to supervise the corridor traffic and other concomitants of visits to gang toilets. Inconveniences of time and distance discourage many children from making necessary toilet visits even though there may be greater freedom of movement and less conspicuousness in arrivals and departures.

The "Kindergarten Movement"

Probably the growth of the kindergarten movement, which first encouraged the provision of immediately adjacent toilet facilities, led many schools to become interested in classroom toilets. Teachers discovered that they could easily keep track of the entire group, could immediately attend to health emergency problems, and could permit their educational programs to continue without the artificial interruption of a toilet recess. The idea has gradually spread upward in the grades, to a point where we now find fairly large new buildings with no gang toilets whatsoever and with separate toilet facilities serving classes all the way through the eighth grade.

Few classroom teachers will need to be reminded of the problems which attend gang toilet arrangements: time waste, necessity for pupils to be out of the range of regular supervision, awkward time breaks, disciplinary problems when groups of children (especially those the opposite sex of the teacher) misbehave, waste of paper towels and lavatory supplies, uncivilized writings on walls, and similar troubles.

By contrast, the teacher with toilet facilities connected to the classroom can immediately pinpoint misdemeanors or waste of the foregoing types because the identity of the last person to use the washroom is easily determined. There is no need to set aside toilet-recess times since children can slip into the washroom as necessary and return with a minimum of classroom time lost. Furthermore, this simple, family-style plan eliminates many of the dramatic aspects of the traditional scheme and enables children to take the entire question of bodily elimination into healthier stride — a notable contribution to mental hygiene!

It is sometimes argued that it is more expensive to include separate toilets in every classroom (or pair of classrooms). Although probably true in most cases, the slight additional cost appears to be insignificant when one measures the advantages gained. Furthermore, the old gang toilets definitely created a building-layout problem for the architects. Under the new idea of module construction it is frequently helpful to the architect if he can include toilets within each module instead of having to arrange for separate toilet locations.

What About Separate Facilities?

The next question is, shall each classroom have separate facilities for boys and girls? Often, state building codes leave no room for doubt, since many specify that boys' and girls' toilets must be separate. They may also specify an average of more than one water closet per class of 25 or 30. Some communities solve this problem by arranging toilet suites (separate rooms for boys and for girls) located between two classrooms, with access from both rooms. The same idea can be applied to small groups of three, four, or more classrooms, depending upon the general building layout.

The experience of Park Forest, Ill., school system may be of interest to administrators and architects who would like to consider one single facility in each classroom to be used jointly by boys and girls. In this new community, the first classrooms were located in apartment buildings which had been temporarily converted into schools. Here, the buildings were provided with typical bathrooms (including water closets, lavatories, and bathtubs of the type one finds in a typical apartment or house). The boys and girls shared this bathroom facility in each classroom of necessity, in a "family-style" arrangement which proved to be remarkably successful. After the first year, during which the highest grade was the sixth grade (seventh and eighth graders were sent to a neighboring town on a tuition basis), the former sixth graders became seventh graders and continued with the original arrangement. By the third year, one permanent elementary school (designed for grades kindergarten through six, only) was available and it was temporarily used to house a few classes of grades seven and eight in a modied junior-high plan.

In this new building, because of the great success of the toilet arrangements in the temporary schools, only one toilet per classroom was provided. Although the school staff expected to designate certain of the classroom toilets for boys only and others for girls only, the former seventh graders solved the problem themselves by continuing to share the facilities from force of habit. The teachers were fascinated to observe that, in that year and in three subsequent years under similar circumstances, not a single parent or junior-high pupil ever registered a complaint against the arrangement. In this case, therefore, one group of older children demonstrated voluntarily that they did not require separate toilet facilities. Although the significance of this experience would be very limited for most junior high schools, it certainly adds strength to the arguments favoring a shared facility through the primary and intermediate grades.

THE AMERICAN
School Board Journal

An Independent Periodical of School Administration

William C. Bruce, *Editor*

SCHOOL BUILDING IN 1956

AT THE recent White House Conference on Education the one topic which received the most widespread agreement in the discussions was the problem of overcoming the shortage of schoolroom space. And the resolution of the Conference asking for federal aid for schoolhouse construction to be given needy states and local communities quickly received the prompt assurance of Herold Hunt, undersecretary of the U. S. Department of Health, Education, and Welfare that the present Republican Administration will support favorable legislation to be introduced in Congress at an early date.

Despite the fact that the number of overcrowded classrooms was reduced during the past year by about 10 per cent according to the latest study of the U. S. Office of Education, there still is an excessive shortage of school buildings due to the natural increase of school population and the terrific accumulation of shortages developed during the war years. The increase in total enrollment in elementary and secondary schools in September, 1955, approximated one million children, or 3.5 per cent, over the previous year. The greater increase of 3.5 per cent was in the elementary schools as against 3.1 per cent in the high schools. Significantly, the schools increased the number of teachers employed by 73,000, or 6.9 per cent over the former year, resulting in a reduction of the average number of pupils per teacher from 27.7 to 26.8 children.

The present school plant problems of boards of education who have worked out long range programs are twofold: (1) to decide what is a good school building suited to the changing forms of school organization and teaching method; and (2) to find the ever greater amounts of money needed for sites, building construction, and equipment.

Elementary Schoolhouses

The characteristics of the typical good elementary school building seems to have been stabilized for the time being as one-story high, rarely larger than 20 classrooms, with the offices and service rooms connecting the wings. Classrooms for 30 pupils approximately 900 square feet in area, with built-in cabinets and cases for books, instructional materials, and clothing storage. High standards of comfort are provided by good natural and artificial lighting, wall and floor finishes of pleasant texture and color, economical heating and ventilation that adjusts itself to warm as well as cold days, and in some cases pupils' toilet and washrooms.

In smaller elementary schools, the all-purpose room more than ever justifies its name as useful for large-group instructional activities, assemblies, the servicing of noon lunches, the accommodation of indoor play and physical education, and even library service.

More and more, large elementary schools provide separate rooms for library, shop, and home-economics activities, an administrative suite with space for guidance and health services. Assembly rooms still are commonly used for physical education as well as dramatics, etc. The completed planning takes into account also the growing use of the larger area rooms by adult groups.

Current experiments in elementary planning are developing some school buildings consisting of an administrative center with unique four-classroom units which have self-contained heating, toilet, and storage services. These represent some unique and economical uses of such materials as cement, plastics, and glass, but they still pose unsolved problems in traffic, communication, and supervision. These schools seem to be better suited to rural and warm areas than to urban and northern situations.

High School Developments

While accepted practice of high school planning still favors multi-storied buildings, prewar compact arrangements have given way to sprawling horizontal layouts with separate wings for academic rooms, for related shops, laboratories, art, music rooms, and for physical education, food service, and assembly areas. A significant change in secondary school planning is evolving from the development of a new idea in general education which requires large basic instruction centers, or so-called general education laboratories. Dr. N. L. Engelhardt, Jr., calls the organization which is in use in some eastern seaboard states, "a school within a school." The central space seats rather large groups of children but is quite unlike the old time study halls.

In the planning of the conventional high schools the trend is to limit the size of assembly rooms and to improve the stage facilities; to enlarge libraries, shops, laboratories, and music departments; to improve the service areas of cafeterias, health rooms, and guidance departments. There is much interest in experiments in the campus type of building, even in northern and eastern areas.

Architectural Design

In the architectural design of elementary and secondary school buildings, the sociological and educational aspects of the planning so strongly overshadow the elements of beauty and dignity especially of the exterior, that few of the newest buildings really reflect the character of the work carried on in them. If the importance and the high service of the school are to become part of the consciousness of parents and passing citizens, it will be necessary for the architects to design the buildings with greater imagination and deeper appreciation of education.

Favorable Financing

In January, 1956, the prospects for reasonably low interest rates — in the neighborhood of 2.35 to 2.55 per cent for most school districts — are excellent. Boards of education should watch the changing policies of the Federal Government which are being put into effect to control further inflation and to ease a possible slight business recession. Some school districts still enjoy so high a credit rating that they pay around 2 per cent for 20-year bonds. These districts have profited from the prudent financial planning and administration of the coextensive political units. All school boards should be watchful of the policies of the local town and/or city and county governments so that the highest possible credit ratings are maintained.

While a federal aid law will greatly relieve the present situation, there is serious need for state legislation that will provide needy school districts with a flow of funds. The device of financing through local school construction corporations is worth further study.

Word from Washington

White House Conference Backs School Building Aid

Neil H. McElroy (right), White House Conference Chairman, here greets W. Preston Lane, Jr., former Governor of Maryland, at the Third General session of the White House Conference. Mr. Lane presented background remarks on "What Are Our School Building Needs?"

ELAINE EXTON

The underlying issue tugging at the grassroots and pervading the discussions of the nation's school needs at the White House Conference on Education in the nation's capital last month was federal aid to education. The most hard-fought message, that a more than 2-to-1 majority of the 1800 "participating" delegates wished carried to the President of the United States, was a resounding plea for the Federal Government to "increase its financial participation in public education."

Financing School Construction

"Of those favoring such increase, the overwhelming majority approved an increase in Federal funds for school building construction" concludes the final report summarizing round-table sentiments on the key question of the Conference: *How Can We Finance Our Schools — Build and Operate Them?*

Other findings of the parley's finance report said:

On the issue of Federal funds to the states for local school operation, the participants divided almost evenly.

A very small minority was opposed to Federal aid for education in any form.

A majority agreed that all states and territories and the District of Columbia should be eligible for Federal funds but that they should be granted only on the basis of demonstrated needs.

Federal aid should never be permitted to become a deterrent to state and local initiative in education.

The delegates almost unanimously opposed any Federal control over educational use of funds in local school districts.

While the participants recognized the right of parents to educate their children in non-public schools in accordance with American tradition, a large majority of the participants did not favor the use of tax funds for support of non-public educational institutions. . . . As means for increasing support of non-public schools, private and corporate gifts and grants and tuition fees were suggested.

The finance report which Mrs. Pearl A. Wanamaker, Washington State Superintendent of Public Instruction, read to the delegates at their last session was jointly hammered out by Mrs. Wanamaker and Edgar Fuller, Executive Secretary of the Council of Chief State School Officers, who were unexpectedly thrown into the role of compiling this final "distillation" of delegate opinion by the machinery of the Conference.

In accordance with the meeting's intricate procedure, after each round of discussion of one of the six main topics on the Conference agenda — school goals, organization, building needs, teacher shortages, finance, and public interest in education — the chairmen of the 166 round tables (made up of 10 to 12 persons constituting a cross section of the Conference membership), assembled at 16 tables of 10 each to report the consensus of their tablemates.

Each of these 16 panels subsequently elected a chairman to represent them in further condensation of conclusions. These leaders then gathered at two tables to collate the findings, which each named a cochairman to draft the final synthesis that became the official recommendations of the Conference.

Federal Aid the Foremost Topic

The emergence of so strong a popular demand for federal aid for school construction was one of the surprising developments of this Conference where lay citizens from the 53 states and territories predominated by a ratio of 2 to 1.

The decision came in the face of accusations by some of the proponents of federal aid, including certain labor and professional education groups, that the Conference had been "stacked" against government assistance to the nation's schools and the voicing of fears that the Conference procedure which banned voting, resolution passing, and floor debate would preclude the issue being thoroughly aired.

This unexpected denouement immediately provoked cries that the "Federal aid people had gained control." Some dissenting delegates said privately that the report did not reflect the true majority opinion. Two California delegates — Mrs. Ruth C. Cole, president of the Los Angeles Board of Education, and Mrs. Edith K. Stafford, chairman of its building committee — vigorously protested the way the report had been prepared.

The chairman of Nevada's delegation unsuccessfully sought to introduce a resolution condemning its drafting by two chairmen who "are outstanding proponents of federal aid" and seeking its re-evaluation by impartial persons. The Texas delegation released a statement expressing opposition to federal aid to public schools before the Conference closed.

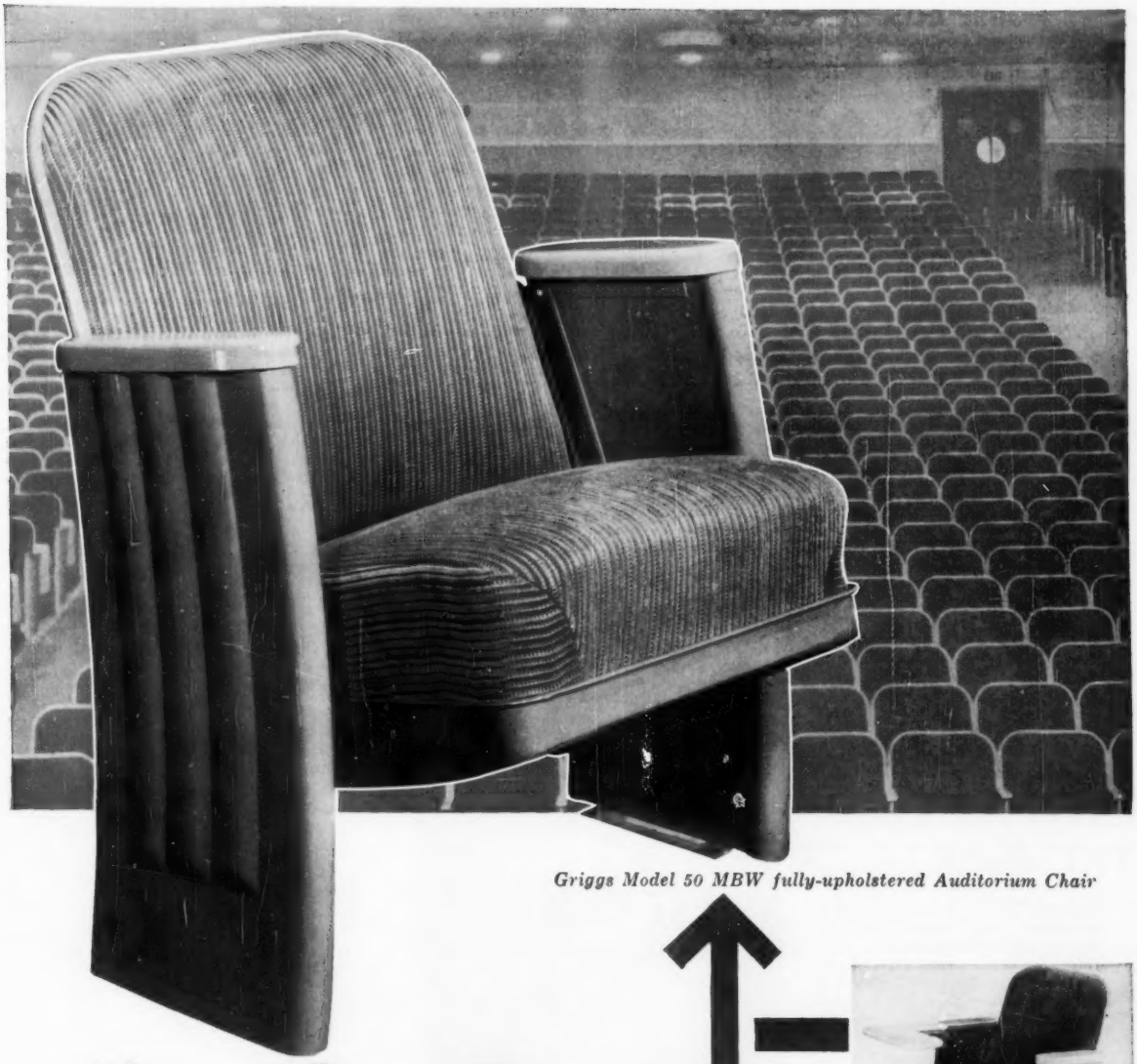
Measures of Need

Something of the enormity of the school building problem was brought home to the gathering by Chairman Neil McElroy's mention that it would take at least 1080 classrooms to house the children born during the period of the White House Conference.

Other speakers underscored the gravity of the situation in varied ways. Secretary of Health, Education, and Welfare Folsom reported that "every 10 minutes a new classroom of children reaches school age, and a new room and another teacher are required," while Vice-President Richard M. Nixon measured its magnitude with an estimate that "over the next ten years we must spend approximately 31 billion dollars for elementary and primary classrooms alone."

In his background remarks to the Conference on *What Are Our School Building Needs?* William Preston Lane, Jr., former Governor of Maryland, placed the total nationwide requirement at 374,250 classrooms for the five years 1955 to 1960. Moreover, according to returns from 41 states and territories representing 81.4 per cent of the nation's population, 203,450 new schoolrooms were deemed necessary for the current school year (1955–56), 76 per cent of this deficit resulting from accumulated backlog. Ten states reported they were "gaining ground" in keeping

(Continued on page 72)



Griggs Model 50 MBW fully-upholstered Auditorium Chair

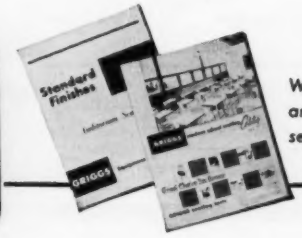
Meets Every Requirement

for fine auditorium seating

Comfort . . . beauty . . . durability — the three items you must consider when buying your auditorium seating. Look to Griggs — a chair in their large seating line meets the need for your school. And you'll get lots of extras with every Griggs chair — "Push-Back" or self-rising seats, solid *steel* standards that go all the way to the floor, and the widest choice of colors and fabrics offered by any manufacturer.

All Griggs auditorium chairs can be ordered with folding, "out-of-the-way" tablet arms. Convert part of your auditorium into lecture space with these handy writing attachments.

Griggs
EQUIPMENT COMPANY



Write today for Griggs complete catalog on school and auditorium seating. As an aid to color and material selection, please request Auditorium Seating Color Guide.

Box 630, Belton, Texas

WHITE HOUSE CONFERENCE

(Continued from page 70)

pace with current construction needs, 12 replied they were "holding their own," while 19 others said they were "losing ground."

These figures were obtained through an inquiry sent to authorities in each state and territory asking whether they now — in 1955 — consider that the figures on classroom needs in their state as reported for September, 1952, in the Status Phase of the School Facilities Survey compiled by the U. S. Office of Education were correct or constituted an understatement or overstatement. Of the 35 states replying to this part of the questionnaire, 23 indicated that the figures were correct, 11 labeled them an understatement, and one claimed to have made an overstatement.

In a joint interview with William R. Flesher of Ohio State University, consultant to the White House Conference Subcommittee on School Building Needs, and Ray L. Hamon, chief of the U. S. Office of Education's School Housing Section, Dr. Hamon told this reporter that the White House Conference Committee's appraisal bore out the findings of Phase I of the School Facilities Survey published by the U. S. Office of Education two years ago and showed, if anything, that this survey's figures, which have been questioned by some sources, were an underestimate of the need. Mr. Flesher concurred that these two reports were in substantial agreement and essentially the same.

Delegates discussing the nation's schoolroom crises at the White House Conference are (left to right from foreground): Clarke W. Duncan, Buena Vista, Ga.; A. C. Davis, Raleigh, N. C.; Mrs. Mary Jo Tregilgas, Compton, Calif.; Einor E. Erlandsen, Escanaba, Mich.; W. W. Theisen, Milwaukee, Wis.; Mrs. A. G. Link, New Jersey, N. J.; George P. Deyoe, Champaign, Ill.; Dr. Charles E. Rochelle, Evansville, Ind.; Miss Louise Combs, Frankfort, Ky.; Mrs. Madelaine F. Coutant, Albany, N. Y.

That there is some difference in the figures, Dr. Hamon pointed out, is due to the following circumstances. Both summaries are projected from less than the total and are predicated on samplings including different states, the White House Conference data being based on returns from 41 states, the Office of Education survey on replies from 43.

There is also a difference in time span, the White House Conference inquiry dealing with cumulative need for the five-year period between now and 1960, while the last-named covers the years between September, 1954, and September, 1959. The construction carried on in the interval between the two studies injects another variable element. Moreover, while the White House Conference Committee secured its data through questionnaires, the Office of Education research was undertaken at the grass roots by state and local survey teams.

The picture emerging from the Conference report on building needs was even more grim. It found that only two or three states said they "can meet their building needs for the next five years" and held that only a few "presently (have) plans which indicate a political determination powerful enough to overcome all of the obstacles."

In discussing the significance to communities and states of taking a long range view of their building and site needs, W. W. Theisen, Assistant Superintendent of Schools in Milwaukee and president of the National Council on Schoolhouse Construction, commented: "Future pupil loads need to be predicted with as high a degree of accuracy as possible and building needs mapped accordingly. Communities which fail to anticipate future site needs must expect to settle for less desirable locations and smaller areas than good practice would require or to spend much more money than would have been necessary with good planning."

(Continued on page 76)

Here's the one desk that eliminates all size problems!

. . . GRADE 7 THROUGH COLLEGE

Surveys show that the *average* size of students stays about constant. They also show an increasing number of *larger* students in secondary schools. Our No. 445 Desk is a practical answer to this problem. Developed through extensive research, and consultation with educators, this is the *one* desk that meets the physical, psychological, and curricular needs of *all* students — "big," "normal," and "small."

American Seating No. 445 Desk is functionally designed for student comfort, proper posture. Pylon-type construction provides free footroom, permits unobstructed body movement; generous space between chair and writing surface.

Cradleform seat swivels on silent nylon bearings for easy, one-motion entry and exit. Lower rail on deep-curved seat-back is self-conforming to all students' backs; offset back-brace gives extra hip room. Non-trash-collecting platform offers ample book-storage space.

The sloped desk top — of Amerex high-pressure-type plastic, or of lacquered plywood — measures 16″ x 23″. And desk heights may be varied — 27″, 28″, 29″, or 30″. Write for folder fully describing the design, construction, and adaptability of the modern No. 445 Desk — today!

Remember, more schools buy American Seating products than *any* other make—consequently, more students enjoy the comfort and good posture of American Seating furniture than of any other make.

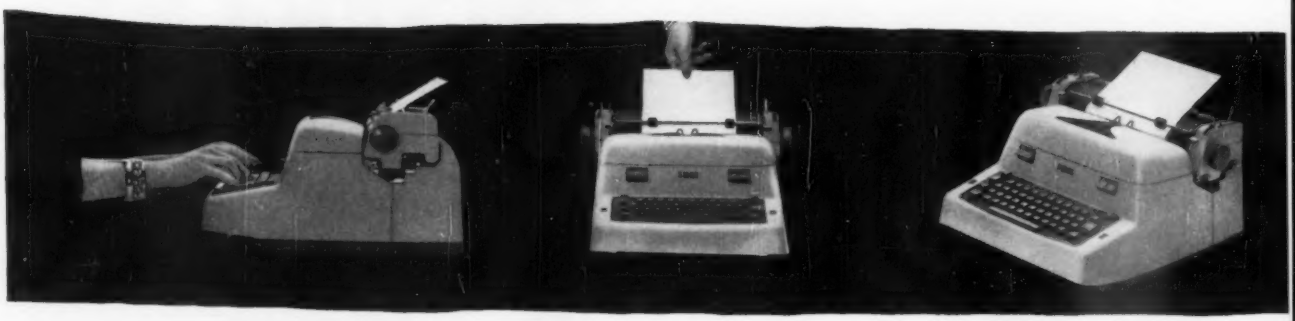
AMERICAN SEATING

GRAND RAPIDS 2, MICHIGAN

WORLD'S LEADER IN PUBLIC SEATING
School, Auditorium, Theatre, Church, Transportation, Stadium Seating; Folding Chairs. Offices and Distributors in Principal Cities.

FROM EVERYBODY'S POINT OF VIEW

A Switch TO IE IS THE RIGHT M



Principals have discovered that students trained on IBM Electrics type better and faster on *all* typewriters—even manuals. And this results in happier, more confident students who are getting the best possible training for the best jobs of the future.

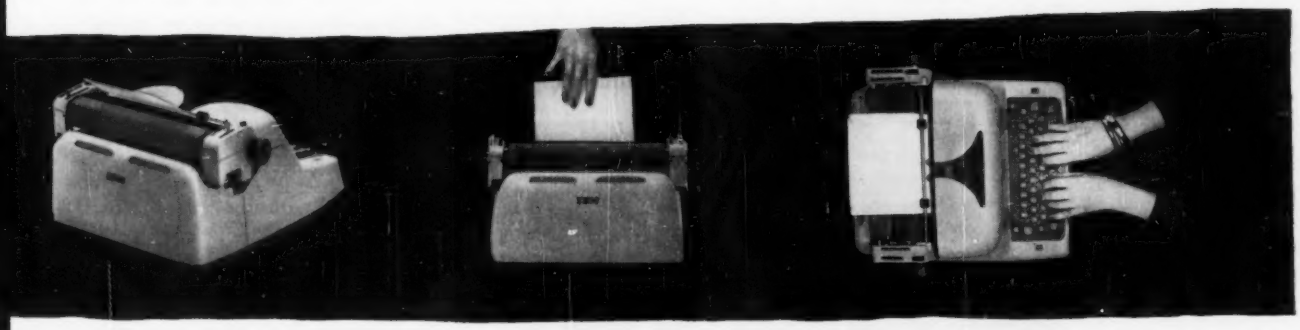
Teachers say their jobs are so much easier and more successful when they teach on IBM Electrics. Complicated carriage and stroking drills can be eliminated or simplified—leaving more time to concentrate on overall typing techniques.

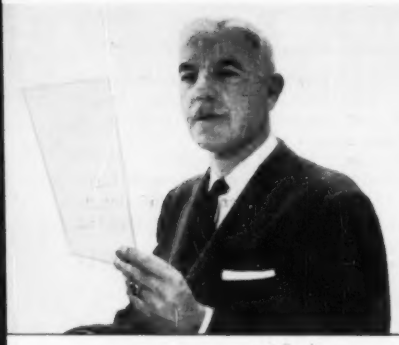
International Business Machines Corporation
590 Madison Avenue, New York 22, N. Y.

* IBM® ELECTRIC TYPEWRITERS

IBM ELECTRICS

MOVE TO MAKE





School board members are aware of the growing trend toward electrics in modern business today—*and* of the preference for the IBM Electric*. They feel schools must keep pace with this trend in order to prepare students best for future jobs.

Superintendents find the IBM Electric is undoubtedly the best typewriter buy for today's school needs. Because schools can expect longer and better service from the IBM, the per-student cost of a switch to the IBM Electric is surprisingly low.

...OUTSELL ALL OTHER ELECTRICS COMBINED!

WHITE HOUSE CONFERENCE

(Continued from page 72)

Facilities Desired

When Frank C. Moore, former Lieutenant Governor of New York, stated "our people want and need not only *more* schools to meet upsurging enrollments but *better* schools," he voiced a belief prevalent at the Conference.

The consensus of delegate opinion favored these basic facilities:

For an Elementary School: Adequate site, classrooms including kindergarten, office facilities, space for assembly and cafeteria activities or multi-purpose room, physical education and playground facilities, equipment health unit, teachers' room, service and sanitary facilities, toilet rooms, custodial and storage rooms. **Desirable, but not mandatory:** Special service rooms, library, and visual aid facilities.

For a Secondary School: Adequate site, general classrooms, special classrooms for science, art, homemaking, music, industrial arts, and for vocational education, boys' and girls' physical education, offices, library and textbook rooms, cafeteria, auditorium, health unit, teachers' lounge, locker facilities for students. **Desirable, but not mandatory:** Swimming pool, visual aid facilities.

Obstacles and Some Solutions

The Conference's school building report as submitted by Earl H. Beling, engineering consultant of Moline, Ill., and Elmer W. Rowley, dean of Joliet Junior College, Joliet, Ill., listed these 17 obstacles to progress:

1. School building codes are frequently obsolete. They should be revised at intervals of not more than five years to make full use of newer building materials and methods.
2. Lack of co-operative effort in reorganization to assure efficient administration.
3. Lack of foresight in long-term planning for future needs.
4. Construction industry not rapid enough to take care of needs because of shortages in materials, labor, and professional services.
5. State institutional laws limiting bonding capacity.
6. Failure of state laws to equalize tax values.
7. Mobility of population; increase in birth rate; influx of new population.
8. Lack of understanding of school building needs on part of the public.
9. Building plans in relation to cost and design not acceptable to community.
10. Community lacks financial ability to support minimum construction needs.
11. Community resists additional taxation.
12. Community resists consolidation of districts and attendant building needs.
13. Loss of tax revenue due to use of land and facilities by the state and federal agencies.
14. Almost complete dependence on property tax.
15. Tax exemptions and preferential tax treatment to attract industry.
16. High interest rate and bad credit risks.
17. Representatives from Washington, D. C., stated that federal legislation would be necessary in order for them to construct the buildings they will need in the next five years. In addition to that, the basic problem here seems to be a lack of fiscal independence which is to be noted in quite a number of municipalities across the country.

Among the solutions suggested were:

Presentation graphically of accurate factual data to the public in the hope that an intelligent electorate will meet the problem on a local and state level.

More realistic bonded indebtedness.

Equalized tax valuation on state-wide basis.

State Planning Commission for public buildings which would study needs of impoverished districts.

Continuation of federal aid to impacted areas.

Better advance planning for new areas.

Some feel that state assistance to distressed districts for capital outlay should be studied.

It was the feeling of the group that federal land properties are not bearing their fair share of taxes.

There was a feeling that the Federal Government should reimburse the states in lieu of taxes.

The school building report also advocated that "states should pursue research, and provide leadership through consulting services, for school districts on building construction, with special emphasis on new building materials and techniques"; advised that "design should be the joint efforts of lay or professional groups and individuals, including architects, engineers, community planners, teachers, pupils, administrators, and other citizens"; urged more effective use of buildings for school and community purposes."

A caution that "the Federal Government

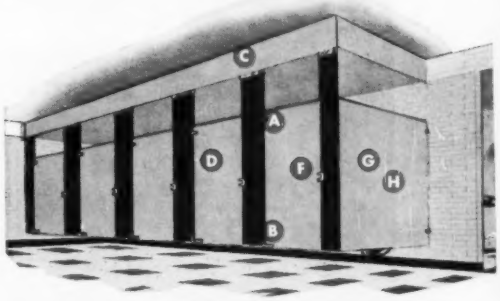
(Concluded on page 94)

No. 6
OF A SERIES

WHAT TO LOOK FOR IN QUALITY TOILET COMPARTMENT CONSTRUCTION

Many major differences that give you your money's worth in satisfactory service!

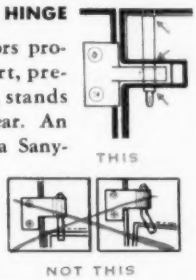
Check QUALITY CONSTRUCTION FEATURES YOU WANT IN TOILET COMPARTMENTS



Quality construction features set Sanymetal Toilet Compartments apart from ordinary products, make them last longer, make them give more satisfactory service. "Any metal toilet stall" is not *Sanymetal*. Use this check list to discover the many *extra* quality features Sanymetal offers.

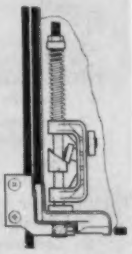
A INSET TYPE TOP HINGE

on all Sanymetal doors provides 3-point support, prevents misalignment, stands abuse, eliminates wear. An adult can swing on a Sanymetal door without harming it. (*See advertisement No. 2, this series**.)



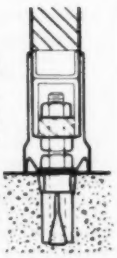
B FULLY CONCEALED BOTTOM HINGE

(by test proved to give over 301,000 cycles of use without noticeable wear.) Controlled-action positions door, fully bearingized – always works easily. Door does not rise or lower as it swings. (*See advertisement No. 4**.)



C TROUBLE-FREE FLOOR CONNECTIONS

by a Sanymetal patented method produce firm, rigid connections for floor-braced types. Fittings are heavy-duty and concealed. Ceiling connections are same design, produce same rigid strength for ceiling-hung units.

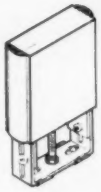


D WELDED DOOR UNIT

construction provides a door panel that stays flat without wind and in line even when it is severely abused. Door surfaces are welded together to form one rigid, permanent unit. (*See advertisement No. 3, this series**.)

E QUICK, PERMANENT LEVELING

by built-in jackscrew saves field labor. Screw supports compartment weight direct to floor, cannot slip. The compartment is held level permanently. (*See advertisement No. 5**.)



F PACKAGED HARDWARE SPEEDS INSTALLATION

Hardware for each panel, door, pilaster in separate, plainly labeled package speeds installation, prevents loss, saves installation dollars. Like most Sanymetal features, this advantage costs you nothing.

G PORCENA, SANYMETAL'S VITREOUS PORCELAIN

on steel, meets Porcelain Enamel Institute standards for genuine, acid-resisting porcelain enamel. Porcena has the hardness of glass, the natural strength of steel. It never requires refinishing. (*See advertisement No. 1**.)

H CERTIFIED BASIC STEEL AND FINISH QUALITY

Label on Sanymetal "Tenac" certifies use of furniture steel that is galvanized and Bonderized** with two coats of quality synthetic enamel. Nothing less lasts as well as this 4-fold finish.

***Bonderite*, a product of the Parker Rust Proof Co.

I STAINLESS STEEL FLOOR MOP MOLD

assures long life and attractiveness, withstands exposure to cleaning materials, acids, scuffing and abrasion. It is held tight to the floor by hidden spring clips.

**See Sweet's, or send for Catalog 92, describing all Sanymetal Compartments. If you wish, we will send other advertisements in this series about quality construction details.*

When you buy or specify toilet compartments—be sure they are SANYMETAL*—you have that choice.*

THE
Sanymetal®
PRODUCTS COMPANY, INC.
1686 URBANA ROAD, CLEVELAND 12, OHIO

RELIGION IN PUBLIC EDUCATION

HERBERT B. MULFORD

Chicago and its surrounding suburbs in Cook, DuPage, Lake, and Will Counties of Illinois have just witnessed the launching of a new and continuous movement to relate religious understanding to the curricula of the 1204 public schools of that area.

The occasion was American Education Week; the place was St. Louis at the first nationwide conference on religion and public education called by the National Council of Churches of Christ in the U. S. The immediate vehicle was the presentation for discussion of a tentative policy guide prepared by the commission on religion and education of the Church Federation of Greater Chicago to aid the 1200 churches affiliated with that federation. The immediate goals of this tentative guide are:

1. To challenge the member churches and their denominations to recognize their civic obligations to support in every way possible the institution of the public school.
2. To challenge the public schools of the area to work at the problems of relating religious understanding to their curricula.
3. To begin to establish a sort of local clearinghouse for information for both churches and public schools on what is transpiring over the nation in respect to religion and public education.

Two significant aspects of this effort may make it historical. The Church Federation is a continuous body of wide influence, and the eventual adoption of this document makes any guiding policy not just a document but a continuous movement. Heretofore, the score or more of other religious movements in the public educational field have been essentially on a national academic basis, whereas the Chicago movement has been brought down to regional and localized application. This is possibly unique in this controversial issue. A third aspect of the current action shows sharp contrast with the apparent backwardness of teachers colleges, universities, and educational associations in Illinois to take the lead in this situation, rather than to leave it to churches.

Most of the significant problems in this national controversial issue are touched upon in the tentative policy guide. Without attempting full direct quotation, the following points seem most pertinent:

Points Discussed

The free public school system is sound government policy and should be supported. Increase in parochial or other private schools does not solve the problem before the public schools.

The churches should be concerned about all phases of public school operations, including basic educational philosophy, leadership, curriculum, buildings and equipment, problems of finance, problems of moral and spiritual significance, and problems relating to religion in education.

Churches should expect from public education the highest ethical standards in selection of professional personnel and members of boards of education. Factors of bias involving race, creed, nationality, sex, color,

(Concluded on page 80)

RELIGION IN EDUCATION

(Concluded from page 78)

or special interests should not be considerations in public education.

The public schools have an obligation to recognize in a positive and forthright policy and practice that true moral and spiritual values are religious values.

Separation of Church and State should be observed in pertinent respects.

While the estimated three per cent of the population who are not believers in God should not be ignored, they should not be permitted to veto the educational wishes of the 97 per cent who do believe.

The tentative guide was given distribution through nearly 200 delegates and observers at the St. Louis conference, which was attended by persons from all the principal faiths. The progress for actual adoption of the tentative policy by all constituent bodies of the federation will take some months. Wide opportunity has been extended locally and nationally for criticism and suggestions for changes in the document. Meanwhile continuous conferences are being held by the commission sponsoring the recommendations.

READING AN INVESTMENT

The Lubbock, Tex., board of education has recently issued a special leaflet addressed to the parents, and intended to make clear how reading enters into nearly every phase of the schoolwork from the kindergarten through high school.

In determining a child's readiness for any reading level, many factors are taken into consideration, such as the child's general level of maturity, his particular abilities, and his interest in different types of reading materials. Information about each child is obtained by the teacher from his school records, from test results, and from a study of the materials he reads successfully.

The elementary school seeks to develop not merely fluency in reading but also to teach understandings, skills, and attitudes necessary to give adequate meaning from the printed page. Actual reading of the printed page is supplemented by conversation and picture reading, identification of likenesses and differences in word sounds, and developing other good eye habits.

The reading program makes provision for a wide range of abilities among children by providing a variety of material on different levels of difficulty and by adapting methods of instruction to meet the individual growth patterns of the students.

In the intermediate grades the school seeks to develop at least six important abilities. Among the most important of these abilities are: (1) ability to read to follow directions; (2) ability to predict outcomes; (3) ability to form impressions from what is read; (4) ability to note details in the material read; (5) ability to read critically; (6) ability to read graphs, maps, tables, and other pictorial and tabular materials.

In the high school all teachers are constantly reminded to give attention to reading and study skills. Reading is offered as an extracurricular subject to help children who may lack one or another of the basic skills, and diagnostic reading tests are given annually to children who are suspected of having reading weaknesses.

Opportunities to read widely in several fields of interest are provided for all secondary school pupils, and the school library is the chief center from which materials are drawn.

Why do modern school systems install Mutschler?

The school homemaking kitchen and laundry are two of the department's most vital areas. And, they should simulate home conditions as nearly as possible. Schools rely on Mutschler equipment and planning help because they benefit by the experience of a company that has been the "first name in kitchens since 1893." Schools also receive help in planning complete homemaking departments with Mutschler cabinetwork of finest northern maple construction. Cabinets are available in a choice of catalytic natural grain or colored enamel finishes. These finishes are practically impossible to scratch, and are impervious to household solutions and solvents. Write your nearest Mutschler sales representative below for complete information, without obligation. Architects: See Sweet's Architectural File, 23b/Mut and 22d/Mu.

Partial view of adjoining laundry facilities.

A modern Mutschler school kitchen. Note latest home kitchen features and efficient working pattern.

FOR

- Food Laboratory
- Laundry Area
- Arts and Crafts
- Clothing Laboratory
- Sewing Laboratory
- Home Management Area
- Child Care Area
- General Storage Areas

Mutschler SCHOOL EQUIPMENT

Finest in domestic and institutional cabinetwork since 1893!

Close-up of built-in oven and range.

SALES OFFICES

NORTHEAST

CARBEAU, INC.—Boston, Massachusetts; Maine, New Hampshire, Vermont
RAY S. SNYDER COMPANY—Hartsdale, N. Y.; Massachusetts, Connecticut, Rhode Island, New Jersey (northern)
W. S. BALLOU—Massapequa, L.I., N. Y.; New York City, Long Island (eastern)
SCHOOL EQUIPMENT, INC.—Syracuse 3, N. Y.; New York State
AMERICAN SEATING CO.—Philadelphia 30, Pa.; Pennsylvania, New Jersey (southern), Delaware
QUEENS EQUIPMENT CO.—New York, N. Y.; New York City
R. A. KELLY, INC.—Hempstead, L.I., N. Y.; Long Island (western)

SOUTHEAST and SOUTH

SOUTHERN DESK COMPANY—Hickory, N. Carolina; Maryland, West Virginia, Virginia, North Carolina, Tennessee, Mississippi
AMERICAN SEATING CO.—Atlanta 3, Georgia; South Carolina, Georgia, Alabama, Florida
ALL STATE SUPPLY CO.—Little Rock, Arkansas; Arkansas

NORTH CENTRAL

OGLESBY EQUIPMENT CO.—Detroit 19, Michigan; Michigan (lower, except southwestern)
HALDEMAN-HOMME CO.—St. Paul 4, Minnesota; Minnesota
V. A. STUMP—Middleton, Wisconsin, Wisconsin, Michigan (upper)
P. O. WILKINS—Dearborn, Michigan; Michigan (lower, except southwestern)
J. S. LATTA AND SON—Cedar Falls, Iowa; Iowa
L. P. REIGER COMPANY—Bellwood, Illinois; Illinois
BURNS SALES COMPANY—Indianapolis 8, Ind.; Indiana (southern and central)
KYSER SALES COMPANY—Warren, Ohio; Ohio
PORTA BILT KITCHENS—Nappanee, Ind.; Indiana (northern), Michigan (southwestern)

CENTRAL

HOOVER BROTHERS—Kansas City 6, Missouri; Nebraska, Kansas, Missouri (western)
CENTRAL SCHOOL SUPPLY CO.—Louisville, Kentucky; Kentucky
LEN A. MAUNE CO.—St. Louis, Mo.; Missouri (eastern)

SOUTHWEST

W. C. MIXSON COMPANY—Dallas 2, Texas; Louisiana, Oklahoma, Texas, New Mexico
PBSW SUPPLY COMPANY—Phoenix, Arizona; Arizona

WEST

AMERICAN SCHOOL SUPPLY CO.—Denver 2, Colo.; Colorado, Wyoming (eastern)
HULL EQUIPMENT COMPANY—Salt Lake City 2, Utah; Utah, Nevada, Idaho, Wyoming (western), Montana
AMERICAN SEATING CO.—Los Angeles 3, California; California (southern)
AMERICAN SEATING CO.—San Francisco 24, California; California (northern)

NORTHWEST and OTHERS

MUTSCHLER BROTHERS CO.—Nappanee, Indiana; Oregon, Washington, North Dakota, South Dakota

See complete Mutschler Homemaking Department at A.A.S.A. Convention in Atlantic City

Licking Your Dust Problem?

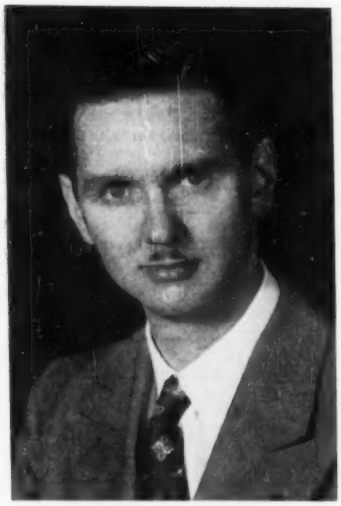
A cat's tongue almost equals Velva-Sheen when it comes to dust control. But for beautiful floors, *nothing* beats the economy of Velva-Sheen in time and materials! Proof?—15,000 sq. feet of floor space can be maintained dustlessly with Velva-Sheen at a cost of only 37c a week for materials.

● **Order Majestic products from your nearest sanitary supply house, or write us for your local supplier's address.**

Classified as to Fire Hazard and Slip Resistance

MAJESTIC WAX COMPANY

DENVER, COLORADO



CHARLES W. FOSTER

New A.S.B.O. Secretary

Dr. Charles W. Foster, business manager of the Thornton Township High School and Junior College, Harvey, Ill., has been named executive secretary of the Association of School Business Officials. Dr. Foster succeeds Harley W. Anderson in this post.

NEWS OF SUPERINTENDENTS

★ PAUL E. SMITH, of Youngstown, Ohio, has accepted the superintendency at Niles. He succeeds Samuel J. Bonham, who remains as assistant superintendent.

★ JAMES A. BERNARD is the new superintendent of schools at Easthampton, Mass.

★ KENNETH H. BOTHWELL, of Berkeley Heights, N. J., has been re-elected for another term, with a $500 increase in salary.

★ JOSEPH P. SCHWEI is the new superintendent at West Milwaukee, Wis.

★ FRANK E. GROFF is the new regional superintendent of the Newhope-Solebury schools, New Hope, Pa.

★ DR. WILLIAM LOWE BRYAN, president emeritus of Indiana University, died on November 21 at his home on the campus. Dr. Bryan was president of the University from 1902 until his retirement in 1937, and then was made president-emeritus.

★ EARL BRANFIELD is the new superintendent at Lyons, Ohio.

★ ROBERT MOUNTS has been elected superintendent of the Grove City-Jackson school district, Grove City, Ohio.

★ WILLARD GIVENS, formerly executive secretary of the National Education Association, has been elected chairman of the U. S. National Commission for UNESCO. Mr. Givens has been associated with UNESCO since its inception and was responsible for laying the groundwork for its organization in 1942.

★ RALPH CROW, of Cleveland, Ohio, has been elected president of the National Association of Public School Adult Education.

NEWS OF SCHOOL BOARDS

★ HENRY L. BRADAKIS has been appointed school maintenance engineer at Kalamazoo, Mich., at a salary of $6,700 per year. The board has ordered that a new arrangement of responsibilities and duties be prepared for the superintendent of buildings and grounds, the maintenance engineer, and the clerk of the works.

★ LUTHER HODGE, JR., former chairman of the Elizabethton, Tenn., school board, recently was given an award for the most outstanding school board member in the state. The school board has begun a revision of the written school board policies which will be issued shortly.

★ B. GEORGE PRICE, of Walterboro, S. C., has recently been elected a member of the executive committee of the South Carolina Association of School Trustees.

★ LONNIE ETHRIDGE, of Newport, Ark., has been elected president of the Arkansas School Board Association. The newly organized association meeting was held in connection with the Arkansas Education Association Convention.

CONSTRUCTION LITERATURE LIST

Informative, up-to-date pamphlets, booklets, and article-reprints on various phases of school building planning and on various products for school building construction are available to those engaged in the planning and building of schools.

If you have a special schoolhouse problem, the following listing of state departments of education and associations of school material and equipment manufacturers who have printed matter available may be helpful to you. The literature is, for the most part, directed to such school administrators as board members, superintendents, and business officials, as well to school architects.

Division of School Buildings and Grounds, The State Education Department, The University of the State of New York, Albany, N. Y.

The New York State Education Department has the following 15 booklets that will be especially helpful to the schoolhouse planner:

Designing the School Plant as a Community Center
8 pages
Presents suggestions for planning the school plant to provide not only the educational needs, but also for social, civic, recreational and cultural needs of the entire community.

Heating and Ventilating Recommendations for New York State Schools
42 pages
An understanding of physiological principles is the basis of this brief consideration of school heating and ventilating problems.

Planning the School Health Suite
4 pages
A number of floor plans of recommended school health suites are provided in this booklet.

Planning the Agricultural and Industrial Arts Shops for Central Rural Schools
8 pages
A pointed appraisal of the housing needs for agricultural and industrial programs.

Planning the School Library
6 pages
Assuming a broad program of library activities, this leaflet considers such factors of planning as location, space provisions, and room treatment, including basic equipment and furniture.

Planning the Indoor Physical Education Facilities
8 pages
A guide to planning necessary indoor facilities to administer and carry out a basic program of physical education.

Planning the School Music Suite
5 pages
Guidance for those who wish to provide adequate space for a progressive program of music.

Planning the Outdoor Physical Education Facilities
27 pages
How to prepare, or to improve, outdoor physical education facilities.

Sanitary Facilities in School Buildings
5 pages
Recommendations seeking to incorporate many of the trends, newer ideas, and proved conclusions concerning standards of design, finish, and materials in school sanitary facilities.

A Planning Guide for Vocational-Industrial and Vocational-Technical Building Facilities for Comprehensive High Schools
36 pages
An assistance to school officials and architects who are engaged in the planning and construction of vocational shops and industrial facilities in comprehensive high schools. Also useful in connection with the planing of separate trade and technical school buildings.

Planning the Science Facilities for Central Schools
6 pages
Recommended facilities for the educational program in science in New York's central schools are outlined in this pamphlet.

Planning and Equipping the Homemaking Department
19 pages
Different aspects of home living which should be included in a basic home-economics curriculum and for which facilities should be planned.

Planning the Art Room for Secondary Schools
7 pages
General consideration with floor plans that outlines art activities for which facilities should be provided.

Planning the School Auditorium
16 pages
Some aspects of the functional planning, or of improving existing, auditorium facilities.

Planning the School Lunchroom
21 pages
Considers the major factors in the planning of school lunchrooms.

Department of Audio-Visual Instruction, National Education Association, 1201 16th St., N.W., Washington 6, D. C.

DAVI has available the following four booklets in their Audio-Visual series:

Planning Schools for Use of Audio-Visual Materials

No. 1. Classrooms
40 pages, $1
An authoritative guide to performance standards in the planning of classrooms for effective use of all kinds of Audio-Visual instructional materials.

No. 2. Auditoriums
36 pages, $1
Emphasizes adequate service and facilities for Audio-Visual education in the planning of the school auditorium.

No. 3. Audio-Visual Instructional Materials Center
80 pages, $1
Designed to help the school planner establish, operate, and make successful an instructional materials center.

No. 4. Audio-Visual Centers in Colleges and Universities
140 pages, $1.50
Presented for those who seek an idea of the problems involved in establishing a comprehensive and effective central instructional service in Audio-Visual aids to instruction.

Schoolhouse Planning Section, State Department of Education, Salem, Ore.

Oregon School Building Designs
167 pages
This booklet of plot and floor plans was prepared to give those who are interested in schoolhouse planning a sample of representative school building designs in Oregon.

Planning the Elementary School
18 pages
A study of long range planning for an elementary school building.

Planning the Secondary School
24 pages
An outline presentation of information needed in forming the educational specifications of a secondary school.

Planning School Building Details
20 pages
An implement to the "Guide for Planning on Schoolhouse Construction" (National Council on Schoolhouse Construction), this outline covers in a complete manner, such building details as heating and ventilating, acoustics, lighting, roofing, etc.

Department of Public Instruction, State Office Building, Des Moines 19, Iowa.

Before You Build
46 pages
A detailed discussion of work preparatory to a school building program.

Office Services, Texas Education Agency, Austin, Tex.

Planning for Tweeners
36 pages, 20 cents
An approach to the design of junior high school plants to cover the needs of adolescents.

School of Education, School Planning Laboratory, Stanford University, California.

Trends in School Planning
119 pages
Developed by the Stanford school of education planning laboratory, a review of the most observable trend in planning and equipping American public schools, emphasizing the relationship of school building planning in curriculum development.

Commonwealth of Massachusetts, Department of Education, 200 Newbury St., Boston, Mass.

Massachusetts Public School Facilities Survey
81 pages
A report on the present facilities that guided the development of a long range building program for improving Massachusetts schools.

State Department of Public Instruction, State of North Carolina, Raleigh, N. C.

School Design
69 pages, $1.50
A comprehensive presentation of certain basic principles of school design as gleaned from the development of schools in one state.

Department of Education, State of Nebraska, State Capital, Lincoln 9, Neb.

The Cozard School Survey Report
14 pages
A survey of the present facilities and needed building program of a community.

The North Platte School Survey Report
19 pages
A report on the long range needs of the North Platte schools at the elementary and secondary levels, pinpointing construction needs.

Superintendent of Public Instruction, North Dakota Department of Public Instruction, Bismarck, N. Dak.

Manual for North Dakota School Buildings
206 pages
This school building code details recommendations and suggestions not only for the planning and the erection of the school plant itself, but also for a pre-planning program incorporating the educational philosophy of a given school district.

George H. Bush, Purdue University, No. 8, Education Building, Lafayette, Ind.

Care and Operation of Stadia
13 pages
A reprint of a speech which presents some of the problems encountered in the caring for and operation of stadia for school purposes, with suggestions for meeting the problems.

National Fire Prevention Association, 60 Batterymarch St., Boston 10, Mass.

Building Exits Code
136 pages, $1
This code deals with recommendations and requirements in schools for the number and make of exits, the corridors, the position of stairways and their construction.

School Fires
48 pages, 50 cents
A plea for greater fire safety in schools by maintaining fire safety standards.

List of National Fire Prevention Association Publications
11 pages
A list of publications available from the National Fire Prevention Association, some of which may prove helpful to schoolmen.

Automatic Sprinklers
16 pages, $2 per hundred copies
How the use of automatic sprinklers provides an offset for fire and life hazards in existing and new school buildings.

National Board of Fire Underwriters, 85 John St., New York 38, N. Y.

Fire Safe School Buildings
21 pages
A brief pamphlet about the essential elements of fire-safe school buildings that give requirements for insuring fire safety in new and existing buildings from elementary to college level.

National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Automatic Sprinkler Tables, 1955
16 pages
A summary of the performance of automatic sprinklers at fires.

The Building Research Advisory Board, National Academy of Sciences, 2101 Constitution Ave., N.W., Washington 25, D. C.

School Building Costs
83 pages, 50 cents
A report of the conclusions of working conferences concerning school building costs.

(Continued on page 86)

CONSTRUCTION LITERATURE

(Continued from page 84)

American Standards Association, 70 E. 45th St., New York 17, N. Y.

Price List and Index, American Standards
48 pages
A listing of pamphlets specifying certain standards in almost all areas of construction that may prove of benefit to the architect and engineer.

Acoustical Materials Association, 59 E. 55th St., New York 22, N. Y.

Sound Absorption Coefficients of Architectural Acoustical Materials
30 pages, 50 cents
Reliable, technical data on sound absorbing materials and their uses.

Aluminum Window Manufacturers Association, 75 West St., New York 6, N. Y.

Aluminum Windows Specifications
12 pages
Technical specifications and minimum structural standards covering quality of materials, construction strength of sections and minimum air infiltration requirements as established by aluminum manufacturers.

Simplified Instructions for the Proper Handling and Installation of Aluminum Windows in Commercial and Monumental Buildings
8 pages
How to handle, glaze, clean, and install aluminum windows with specific information on various types.

Ever See a Window Talk About Condensation
5 pages
A pamphlet illustrating of the effects of condensation — what causes it and what to do about it.

Steam Heating Equipment Manufacturers Association, 450 E. Ohio St., Chicago 11, Ill.

What You Should Know About Modern Heating . . . When and How to Use and Specify It
16 pages
Aimed to provide some of the basic facts about modern steam heating — when and how to specify it.

National Mineral Wool Association, 2906 The Americas Building, Rockefeller Center, New York 20, N. Y.

Cutting Air Conditioning Costs With Insulation
7 pages
What insulation can mean by way of air conditioning savings to the modern schoolhouse.

New Directions in Thermal Insulation
5 pages
Covering nonresidential structures, an idea of the advantages of modern thermal insulation.

National Warm Air Heating and Air Conditioning Association, 145 Public Square, Cleveland 14, Ohio.

Perimeter Warm Air Heating and Ventilating
7 pages, 50 cents
Step-by-step considerations that should be noted when specifying perimeter warm air heating and ventilating systems in basementless structures constructed on concrete slab floors.

The Manufacturers Division, Inc., of the National Terrazzo and Mosaic Association, Washington 5, D. C. (7111 14th St., N.W.)

Informational Kit, Data and Specifications, Terrazzo and Mosaics
Information on the uses, specifications, and advantages of terrazzo floors in school buildings.

Chemical Specialties Manufacturers Association, 50 East 41st St., New York 17, N. Y.

The Effect of the Use of Floor Wax on Vinyl Flooring
10 pages
A report of the floor service evaluation as effected by the use of floor wax on vinyl flooring.

Waxing Vinyl Floors
7 pages
A study of six effects produced by the use of various floor wax on several brands of vinyl floors.

Asphalt Tile Institute, 101 Park Avenue, New York 17, N. Y.

Maintenance of Asphalt Tile Floors in Institutional, Commercial and Industrial Buildings
4 pages

(Concluded on page 88)

Edna: But Cathie! Why are you going to Nome, Alaska?

Cathie: Teaching typing on those complicated electric typewriters is driving me nuts. It's murder!

Edna: You mean your classes don't have new Royal Electrics?

Cathie: Heavens no! So I'm off!

Edna: Don't go, Cathie! The new Royal Electrics are *different!* They're *easy* to learn on. Honest!

Royal Electrics have *five* very positive teaching advantages. To change over from standard to electric typing on *them* takes no more than a few hours of practice.

900 service centers assure you prompt and efficient help when you need it.

New Teaching Aids! For you: *Electric Typing for the Classroom Teacher*. For pupils: *The Key to Relaxed Typing*. Both free. Write for them.

Stay away from Nome, Alaska, Cathie. Teaching on new Royal Electrics is much more fun. Put your bid in now.

ROYAL® *electric*

portable • standard • Roytype® business supplies

Royal Typewriter Company, *Division of Royal McBee Corporation*

CONSTRUCTION LITERATURE

(Concluded from page 86)

This brief pamphlet offers general illustrations, equipment, and materials required in maintaining asphalt tile floors.

1955 Asphalt Tile Color Classification Chart
4 pages
A guide showing commercial equivalents of various manufacturers color lines as regarding asphalt tile.

1955 Vinyl Asbestos Tile Color Classification Chart
4 pages
A guide showing commercial equivalents of various manufacturers color lines as regarding vinyl asbestos tile.

National Sanitary Supply Assn., Inc., 139 N. Clark St., Chicago 2, Ill.

Care and Maintenance of Concrete Floors
10 pages
Available to local sanitary supply houses, here is a brief coverage of the advantages and disadvantages of concrete floors — how to care for and maintain them to guarantee their longest use.

Gypsum Association, 20 N. Wacker Drive, Chicago 6, Ill.

Standard Specifications, Gypsum Plastering and Interior Lathing and Furring
17 pages
Describes minimum requirements of various gypsum products.

Reinforced Gypsum Concrete
5 pages
Describes advantages and requirements of gypsum reinforced concrete.

Panel Heating as Allied With Gypsum Products
A mimeographed article covering the use of various gypsum products with panel heating.

National Concrete Masonry Association, 38 S. Dearborn St., Chicago 3, Ill.

Concrete Masonry in School Construction
14 pages
An illustrated review of some of the advantages of using brick, block, or tile in school construction.

California Redwood Association, 576 Sacramento St., San Francisco 11, Calif.

The Architect's Redwood File
16 pages
Detailed information regarding construction use and maintenance of redwood in schools and other buildings.

West Coast Lumbermen's Association, 1410 S.W. Morrison St., Portland 5, Ore.

One Hundred Years of Engineering Progress With Wood — Schools
6 pages
A fundamental discussion of how wood has affected the demands of modern ideas in schoolhousing.

Timber for Recreational Buildings
22 pages
Pictorial presentation of the use of wood in gymnasiums, swimming pools, bleachers, and cafeteria.

Today's Better Schools are Built of Wood
8 pages
A full-color projection of the advantages of using wood in schools.

School Buildings Your Tax Dollar Can Afford
24 pages
This booklet proceeds a story of the economy and safety of one-story wood frame school buildings.

National Lumber Manufacturers Association, 1319 18th St., N.W., Washington 6, D. C.

More for Your Money With the Modern Wood School
22 pages
A well-illustrated argument for the use of wood in planning the modern school.

Architectural Woodwork Institute, 332 S. Michigan Ave., Chicago 4, Ill.

Architectural Woodwork
1. General Introduction, 6 pages
A general introduction to the advantages and qualities of wood used in buildings.
2. Cabinet Work, 6 pages
How wood can be used to advantage in the cabinetwork of schools.
3. Wood Frames and Windows, 6 pages
Some advantages of using wood for window frames.
4. Wall Paneling, 6 pages
How wood paneling can be used to decorate walls.
5. Exterior and Interior Solid Flush Doors, 10 pages
Various information for the use of solid core flush doors.
6. Cabinet Construction Data, 18 pages
Illustrations through photographs and layout plans of how wood storage cabinets are used in kindergartens, administration areas, as well as other commercial buildings.
7. Plywood Paneling, 6 pages
Advantages and standards, specifications of plywood paneling.

National Electrical Manufacturers Association, 155 East 44th St., New York 17, N. Y.

Modern Home Economics Department
17 pages
A collection of floor plans for all-purpose homemaking rooms which have proved the practicality in actual use.

American Society for Testing Materials, 1916 Race St., Philadelphia, Pa.

ASTM Standards on Soaps and Other Detergents
168 pages, $2.50
A compilation of specifications, methods of test, and definitions of terms for soaps and other detergents.

PERSONAL NEWS

★ The Chikaming consolidated school board at Harbert, Mich., has elected new officers for the next year. These include NORMAN KRAEFT, president; MRS. JOSEPH PARREN, secretary; EGILD JENSEN, treasurer; RAY OLSON and EUGENE GRIDLEY, trustees.

★ TOM FOX has been appointed business director for the public schools of Oak Ridge, Tenn. He succeeds Dexter Jeffords, who has accepted a similar position in Roslyn, N. Y.

CUSTER HIGH SCHOOL

(Concluded from page 46)

The sciences are not neglected in the comprehensive high school, as this excellently-equipped chemistry laboratory attests.

of North Division — both senior academic high schools. Vice-principal Gilbert J. Jautz — a graduate engineer as well as teacher by training — had been a staff member at the Boys' Trade and Technical High School and vice-principal of Riverside, an academic high school.

Selecting the Staff

The staff was selected with equal care. Teachers at the old Custer High School were first given an opportunity to make a choice between remaining in the newly constituted Thomas Edison Junior High School, or transferring to the new Custer, or elsewhere. The group asking for transfer to the new Custer constituted about ⅓ of the present faculty. Another ⅓ was recruited from teachers already in the system and requesting transfer to the new building. The remaining ⅓ consists of teachers who this fall began service in the Milwaukee Public Schools. The faculty thus selected, not only establishes continuity with "old" Custer and brings to it familiarity with a large segment of the student body and with the community, but it adds the further stability that comes from a carefully selected group of experienced teachers with a wide variety of Milwaukee backgrounds, and withal incorporates the fresh viewpoints, multiple insights, and youthful enthusiasms of a group of youthful teachers recently trained in many colleges and universities.

The staff was completed during May, 1955, to provide Superintendent Vincent, Mr. Westgaard, Mr. Michalak and others with an opportunity to confer with them prior to the June close of schools. Teachers in Custer reported for duty on September 1, 1955, although teachers in other schools did not return until September 6. Top administrative staff members of the new school began duty on August 1.

All residents of grades 10 through 12 of the districts of the contributing elementary schools were qualified for automatic admission into Custer. Residents of the territories of other high schools who desired to enroll in the technical curriculum were admitted on a guidance basis, and only after individual consultation with Mr. Westgaard. On a temporary basis, pending the completion of the extensive remodeling needed to convert "old" Custer to modern junior high school uses, a ninth grade is housed in the new Custer building.

As a result of detailed co-operative planning, the school opened in smoothly operating condition on September 7, 1955, with 1740 students enrolled.

An Adjusted Extension

And so the new Custer carries ahead the 98-year-old thinking of the Milwaukee public schools. It would be an error to say that it represents a new departure. It is rather an extension of what has gone before, with adjustments to achieve an expanded aim.

As Principal Raymond F. Michalak puts it to his staff: "Teachers will not only develop the student in school, but will prepare him for assuming his place in society as a well-adjusted family member, as an individual competent in fundamental knowledges, skills and attitudes, as an intelligent consumer, as a contributing citizen of his community, and, as an independent wage earner, happy in the career of his choice. The educational program of a comprehensive school is devised to present school experiences which will add to the all-round development of the individual student. In addition to the classroom, all activities within the school should be so planned as to contribute to the growth of the whole child. These include cocurricular, extracurricular, athletic, and social activities. The fundamental knowledges, skills, and attitudes are important objectives. The student should be taught reading, writing, speaking, and listening. He should master numbers in their application to daily life. He should learn to appreciate how the heritage of the past influences the present and the future of our nation and of the world. He should be taught how the arts and sciences contribute to the well-being of humanity, so that he may be inspired to emulate the industry and ingenuity of men who devoted themselves to the advancement of mankind.

"His development of character and personality for daily living with his fellow men needs to be emphasized in his school association with teachers and other students. He should learn that there is merit in followership as there is prestige in leadership. Added to this is the cultivation of mental and physical health so that each may enjoy the vigor of life and living, happy and content not only in his hours of work, but in the ability to make the most intelligent use of his leisure time. He should be taught truths so that he can formulate for himself a code of ethics which will serve as a guide in dealing with his fellow man. In this way he will learn to love his neighbor as himself."

While the concept is not new, of a high school that would serve children in its territory according to their immediate and long-term needs and would provide such differentiation of experiences as would enable each child to succeed according to his types and levels of ability, the implementation of this concept into a program has been somewhat handicapped in older buildings, partly because of a lack of facilities, and partly because of tradition.

Custer offers another chance for a fresh start, although, while adding new insights, opportunities, and facilities, it has its roots deep in traditional American secondary education. It offers conservative growth and not abrupt or revolutionary change. The aims it sets out to achieve are today everywhere the aims of the best modern public high school education — the full and harmonious development of each pupil, both as an individual and as a competent member of a free society. Custer merits more than a passing glance, not only for its modern, well-designed building, but for the fact that in and through these quarters and facilities a carefully selected staff are beginning to work to join young people to a curriculum which is more flexible, more realistic and enriched, than that which Milwaukee offers elsewhere. The staff is prepared to study and evaluate the program. Only time can provide the final test.

PEAK COLLEGE ENROLLMENT

An all-time record of 2,716,000 student enrollment in the nation's colleges and universities this fall was estimated by S. M. Brownell, Commissioner of Education. This is an increase of 216,000 over last year.

Rolling Metal Doors

Provide Removable Dividing Wall in School Gymnasium!

Rolling Metal Doors with movable mullions prove to be ideal for a removable dividing wall in the gymnasium of a modern high school. In this particular installation, four power operated rolling doors are employed in the main floor area . . . two more power operated rolling doors are employed to divide the balcony on either side of the gymnasium floor, thus dividing the gymnasium into two entirely separate parts—which is desirable on many occasions in present-day usage. All visible parts of the six rolling doors, were manufactured in aluminum. Similar installations can be made in stainless steel, or in enamel coated galvanized steel which may be painted after erection to harmonize with a general decorative scheme. For high quality Rolling Metal Doors, and Underwriters' Labeled Rolling Steel Fire Doors and window Shutters, see Mahon's Insert in Sweet's Files, or write for Catalog G-56. Inquiries relative to special purpose doors, and installations such as the one illustrated here, should be addressed to the home office in Detroit for prompt attention.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

Sales-Engineering Offices: Detroit, New York, Chicago • Representatives in Principal Cities

Manufacturers of Rolling Metal Doors, Grilles, and Automatic Underwriters' Labeled Rolling Steel Fire Doors and Shutters; Insulated Metal Walls and Wall Panels; Steel Roof Decks and Long Span M-Decks; M-Floors (Electrified Cel-Beam Sub-Floors.)

The six aluminum rolling doors illustrated here, which form a dividing wall in a school gymnasium, are electrically controlled by push-buttons on a single panel. When the doors are fully opened, the mullions between doors on the main floor are moved out of the way by means of an overhead track and nested at either side, leaving the entire gymnasium floor clear.

ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Interior view of Gymnasium in the new Birmingham High School, Birmingham, Michigan. Swanson Associates, Bloomfield Hills, Michigan, Architects. Cunningham-Limp Company, Detroit, Michigan, General Contractors.

MAHON

REVISE ARCHITECTS' AGREEMENTS

In an effort to further streamline the vast building program of the city schools, the board of education of Los Angeles, Calif., has revised the agreements with architects covering the reuse of construction drawings.

The agreements are divided into three groups. The percentages on projects costing up to $1,500,000 have been reduced to seven, and anything over $1,500,000 to 5 per cent.

If the architect supplies full services, compensation is at the rate of 8 per cent on the first $1,000,000, 7 per cent from $1,000,001 to $3,000,000, and 6 per cent from $3,000,000 and up.

If the school district furnishes a limited amount of services, the fees will be reduced to 7, 6, and 5 per cent respectively. Where drawings and the same architect are reused to build other buildings, the fees will be 4, 3½, and 3 per cent. The architect is permitted to make changes for use at each new site.

SCHOOL BUILDING NEWS

★ The board of education at Miller, S. Dak., is completing a lower grade school building, comprising eight classrooms, a health room, a library room, a board room, and a principal's office. The building which houses the first four grades, cost $182,585.

★ The city council of PTA's at Beaumont, Tex., has appointed a committee to work in an advisory capacity with the board in a survey of school facilities. The committee is already at work on the study.

★ The board of education of Gregory, S. Dak., has asked the citizens to approve a $90,000 bond issue. The money will be used to construct the first floor of a proposed three-story building.

★ A new $300,000 high school plant has been completed at Cleveland, Tex. A new bond election has been called to provide funds for the completing of the building program, which is to include a gymnasium and additional classroom space.

★ Webster, S. Dak. A new armory-auditorium building, constructed through the efforts of the school system, the city government, and the national guard has been dedicated. It has a seating capacity of 3000 and cost $315,000.

★ At Brenham, Tex., a new elementary school has been completed, containing 24 classrooms, a cafeteria-gymnasium, and offices.

★ Mitchell, S. Dak. The board of education is engaged in a search for a suitable site for a new senior high school.

★ The high school at Wagner, S. Dak., occupied a new addition in the fall. The building provides for classrooms, a vocational agriculture shop, locker facilities, and restroom facilities. The building planned for 150 students, contains space for homemaking classes, band and music facilities, a science laboratory, and a general classroom.

★ At Austin, Tex., an election was held to vote $10,000,000 in bonds for new school buildings.

★ Canton, Tex. A new elementary school has been completed and occupied. The building contains 45,850 sq. ft. of floor space and cost $457,946.

★ Clinton, Tenn. The board of education has begun the construction of two new school buildings, including a gymnasium, to cost $65,900, and a cafeteria-kitchen, and auditorium, to cost $170,000.

★ The school district of Anahuac, Tex., has voted $895,000 to erect and equip a new high school.

★ Alvin, Tex. A new junior college building and student center, to cost $500,000, is under construction. A new administration building, to cost $100,000, is under construction for the public schools and junior college.

1956 AASA CONVENTION

"Education, Key to a Lasting Peace" will be the theme of the 1956 Convention of the American Association of School Administrators, to be held at Atlantic City, N. J., February 18–23.

This year's unusually appealing program will feature such outstanding speakers as General Carlos Romulo, Philippine Ambassador to the United States, who will discuss "America's Stake in Asia"; and the Honorable Marion B. Folsom, Secretary of Health, Education, and Welfare.

Feature Speakers

Carlos Romulo

Marion B. Folsom

Convention delegates will be greeted for the National Education Association and the National Council of Parents and Teachers by the groups' presidents, J. L. Buford, superintendent of schools at Mount Vernon, Ill., and Mrs. Rollin Brown.

Liaison Speakers

J. L. Buford

Mrs. Rollin Brown

Presentations will include the award of the past president's key to Henry I. Willett, and the American Education Award for 1956 to Edward M. Tuttle, executive secretary of the National School Boards Association.

Award Receivers

Henry I. Willett

Edward M. Tuttle

Discussion groups and clinics will "lean heavily" on the report findings and personnel from the CPEA.

The exhibit of recently completed school buildings will be more extensive than usual at this year's convention.

WHITE HOUSE CONFERENCE

(Concluded from page 76)

should have no control whatsoever over school building plans and specifications" was another Conference recommendation.

Official Views on School Aid

In his filmed five-minute welcoming message to Conference delegates, President Eisenhower said: "If the Federal Government doesn't step in with leadership and with providing credit and money where necessary, there will be a lack of schools in certain important areas. And this cannot be allowed."

Vice-President Richard Nixon in his in person opening address, reiterated the President's opinion that "the primary responsibility for maintaining educational facilities should be local and state rather than Federal." Acknowledging "that some local communities have insufficient resources to maintain adequate aducational standards and that some means must be found to supplement those resources without impairing local control or stifling local initiative," he went even further, emphasizing, "I think we should recognize at the outset that some additional Federal activity and responsibility is inevitable and necessary in the field of education."

But the climax came in the closing remarks of Secretary of Health, Education, and Welfare Marion B. Folsom which twice mentioned federal aid for school buildings in a way that seemed to presage a liberalization of the Administration's stand and foretell the submission of a new Administration measure after Congress reconvenes.

Fresh from a journey to Gettysburg where he consulted with President Eisenhower and Budget Director Rowland R. Hughes on his department's next year's budget, Secretary Folsom flatly stated that "if the country is to meet classroom needs soon enough the Federal Government must help raise some of the funds for buildings."

He promised that "in the weeks ahead this Administration will present to Congress a broadened and improved program of federal assistance to help erase the classroom deficit and dispell this shadow over our children." He revealed, however, that no decision had as yet been reached on whether direct grants would be included in this proposal or how much money would be sought, saying, "the question is how much federal aid, and exactly how it should be given."

In drafting its new school aid program, Secretary Folsom indicated that the Administration will be guided by these three general principles:

1. Federal assitance in building schools should not reduce the incentive for state and local effort.

2. Federal assistance, while nationwide in scope, benefiting all states, should be distributed according to need.

3. The Federal Government should give assistance without in any way endangering the freedom of local school systems.

Legislative Prospects in 1956

As the White House Conference on Education passed into history, the prospects for enacting a school construction bill in 1956 appeared vastly improved, although it seemed certain that no federal-aid-to-education legislation would get through Congress without a struggle over whether eligibility for U. S. funds should be confined to school districts certifying conformity to the Supreme Court's integration ruling.

SCHOOL BUILDINGS FOR LEARNING

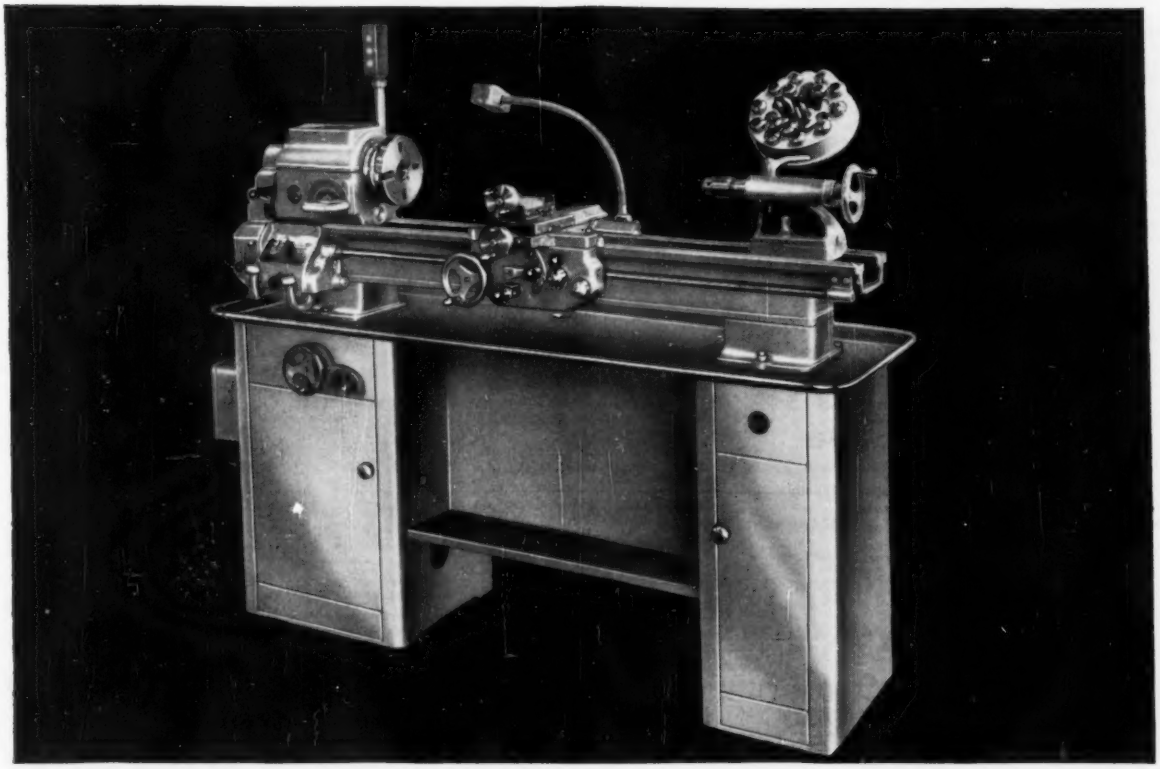
(Concluded from page 28)

study, no curricular or "extracurricular" activity can be rightfully admitted as part of an educational program if it does not contribute to the achievement of these three goals. Likewise, no school building should be built which is not expertly planned so as to contribute in a maximal way to these ends.

By facilitating the work of a competent teacher and the activities of a realistic curriculum through good lighting, proper temperature control and ventilation, safe and healthful furniture and other equipment, and an over-all pleasing appearance, the school building itself must make it possible for a child to be healthier and happier, and a better citizen because he has lived, worked, and played within its walls.

ROCKWELL-BUILT

now, a great new long-bed DELTA 11" metal cutting lathe



NEW CAPACITY... combines a big capacity 5-foot bed with all the exclusive Delta quality features that have gained such rapid acceptance for the standard model.

NEW SAFETY FEATURES... make long-bed and standard models safer for even inexperienced students. New automatic lockout feature on the drive selector prevents stripping of lathe gears. New Electrical Disconnect prevents lathe from starting while gears are exposed (optional).

PLUS... precision, for close tolerance work, and real ruggedness for dependable heavy duty service —all at an amazingly low price!

See the new Delta Long Bed Lathe. Get all the facts, then make up your own mind! Your Delta Dealer is listed under "TOOLS" in the classified pages of your phone book. Be sure and send the coupon for detailed information—now!

Send Coupon for all the facts!

Delta Power Tool Division, Rockwell Manufacturing Co.
408A North Lexington Avenue, Pittsburgh 8, Pa.

☐ Please send name of my nearest Delta Dealer.
☐ Please send Catalog Information on new long-bed Delta 11" Metal Lathe.

Name _____ Title _____
Company _____
Address _____
City _____ County _____ State _____

DELTA ROCKWELL **DELTA** QUALITY POWER TOOLS

Another Product by **Rockwell**

DELTA QUALITY COSTS NO MORE

PUBLICATIONS

A Pattern for School Administration in California

Compiled by Cecil D. Hardesty and C. C. Trillingham. Paper, 61 pp. California Commission on Public School Administration, Sacramento, Calif.

The study for this report was made in 1953, by a state committee, headed by Dr. Trillingham. It deals with the proper role and relationships of the state, county, and local district in public education in California. The California Commission on Public School Administration served as a continuing advisory and consulting body during the development of the statement. The Committee in presenting its report, made several recommendations. These include: (1) Steps should be taken toward improvements in the educational program. (2) The unification of local districts throughout the state should be encouraged. (3) Area-wide co-ordinating of services within the immediate area should be centered in an immediate unit, preferably the county, as a means of avoiding wasteful duplication of funds and personnel, overlapping of activities, and bureaucratic intrusion. (4) The intermediate board should be a lay board, nominated by a committee and elected at an annual caucus of local boards of the area. (5) The state education agency should be a policy-making body and should provide state-wide leadership in education. (6) The state board of education should be a lay body named by the State School Boards Association. (7) Quasi-judicial authority in the interpretation of statutes should be lodged in the intermediate (county) superintendent, or in the chief state school officer. (8) The functions within the jurisdiction of educational agencies, district, intermediate, or state, should be the responsibilities of those agencies. (9) Minimum standards in curriculum and in qualifications and certification of teachers should rest in the state agency for education and the legislature should apply both to public and nonpublic schools.

Kansas City, Missouri:

A study of problems arising out of failure to clarify responsibilities of board and administrative staff.

Paper, 23 pp. National Education Association, 1201 Sixteenth St., N.W., Washington 6, D. C.

The citizens of Kansas City had become concerned over the future progress of their schools because of the frequent changes in superintendents. Dr. Mark W. Bills had been the third superintendent to leave Kansas City within nine years. A group of teachers and other local organizations co-operated in asking the NEA to conduct an investigation into the conditions which had led to this state of affairs. The survey committee, in this report, points out that a basic difficulty in the Kansas City schools resides in the interrelationships of the superintendent and the board of education. Several specific areas are known to have created trouble and misunderstanding between the superintendent and the board. Although not distinctly a dual control system, there has been in effect multiple control at times in the school system. Testimony indicated that the board had tended to be divided. Some members, it was intimated, had gone far beyond their responsibility or proper action. It was the opinion of the survey committee that there should be a clarification of the relations between the board, the superintendent, and the members of the school staff.

Financing of Education

XVIII International Conference on Education. Paper, 284 pp., $2. Columbia University Press, 2960 Broadway, New York 27, N. Y.

A comparative study of the organizational and operational aspects of education financing in 55 countries.

Long-Range Building Program at North Kansas City, Mo.

Paper, 47 pp. Engelhardt, Engelhardt, and Leggett, New York, N. Y.

A convincing report of a continuing school building survey of North Kansas City, Mo., in which due attention is given to municipal boundary lines, new throughways, neighborhood areas, school and park sites, residential units by neighborhoods, new home locations, pupil enrollment in neighborhood areas, and major areas of new home construction. The proposed building program calls for two new senior high schools, three junior high schools, and other facilities.

The School Plant Needs of West Orange, N. J.

Prepared for the board of education by the Institute of Fields Studies, Paper, 141 pp. Teachers College, Columbia University, New York, N. Y.

A report of a survey of school plant needs, conducted by Dr. Felix J. McCormick and three assistants. The report includes a study of the school enrollment, the school plant, and recommendations for new school facilities. The study reveals that the peak in the anticipated enrollment will be reached by 1961, when nearly 4520 pupils will be enrolled in grades K-6, over 800 more than were enrolled in September, 1955. The senior high school enrollment will continue to increase until late in the 1960's. By 1970 there will be more than 2000 students enrolled in grades 10 to 12. It is suggested that the community initiate quickly the projects in the long-range program which can be completed most quickly at the lowest unit cost in order to provide relief from crowded conditions. The program calls for two new elementary schools, a new senior high school, a junior high school, additional elementary school sites, rehabilitation and modernization of school plants, and a school administration building. The cost of this extensive program will reach $6,450,000, of which $3,600,000 will be expended for the high school.

Planning Secondary Schools for General Education Programs

N. L. Englehardt, Jr. Paper, 72 pp., Engelhardt, Engelhardt and Leggett, Educational Consultants, 221 West 57th St., New York 19, N. Y.

A study of the educational planning behind "one of the most fruitful of organizations" of secondary schools.

School Business Management Handbook

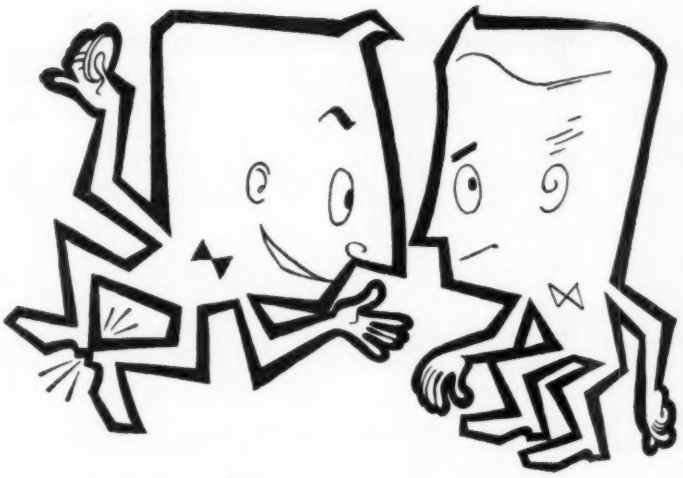
Paper, 88 pp. Bureau of Field Financial Services, State Education Department, Albany, N. Y.

Prepared primarily for the guidance of the administrator responsible for purchase and supply, this handbook suggests detailed procedures which have proved their effectiveness in many school systems. Unquestionably the most important handbook presently available.

What Are Our School Building Needs?

Paper, 74 pp. National Citizens Commission for the Public Schools, 2 West 45th St., New York 36, N. Y.

"An overview of the important considerations in determining" school building needs, posing important questions for the nation as a whole, and providing detailed questions for local areas.

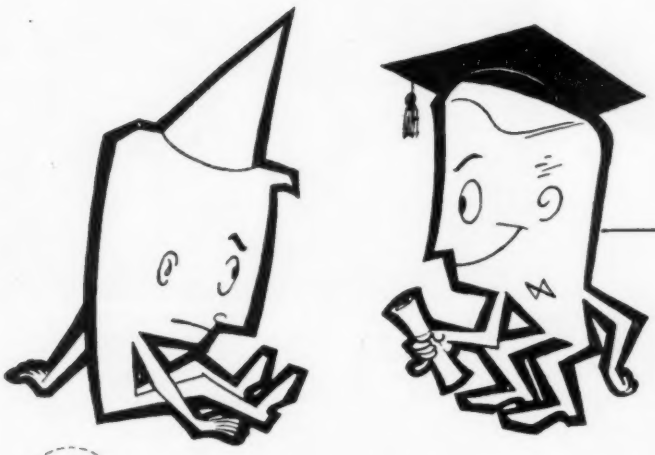


Look! I can buy coal for much less a ton than you're paying.

I used to buy that coal too, but it costs more per million BTU's with a whole lot more in hidden costs.

What do you mean by "hidden costs"?

That coal you're talking about is high in ash. So we were buying ashes at the coal price, paying freight on them from the mine, then paying to have them hauled away. Your "cheaper" coal clinkers; it smokes; it fouls the tubes. That means higher labor costs and higher maintenance. Now I pay more per ton and save thousands of dollars a year.



Coals produced on the C&O are tops in quality.

A C&O combustion engineer showed me why this grade of coal would work best in our type of installation and our experience has shown he was right. You'd better get some expert advice. It can save you money, too.

P.S.

There's a lot more to buying coal than the cost per ton. Why not contact coal producers on the C&O to solve your particular fuel requirements, or write to: R. C. Riedinger, General Coal Traffic Manager, Chesapeake and Ohio Railway Company, Terminal Tower, Cleveland 1, Ohio.

Chesapeake and Ohio Railway

WORLD'S LARGEST CARRIER OF BITUMINOUS COAL

SCHOOL FINANCE AND TAXATION

SCHOOL BOND SALES

During the month of October, 1955, permanent school bonds for school construction purposes were sold in the amount of $130,082,036. The largest sales were made in:

Arizona	$ 2,944,000	New Jersey	$ 7,582,000
California	15,758,000	New York	17,533,500
Illinois	6,670,000	Ohio	3,500,618
Louisiana	6,180,000	Oklahoma	15,905,500
Massachusetts	8,423,000	Pennsylvania	2,064,000
Michigan	11,887,000	Tennessee	5,875,000
Minnesota	5,340,000	Texas	6,327,418

As of December 1, 1955, the average yield of 20 bonds was 2.52 per cent.

SCHOOL CONSTRUCTION

During the month of November, 1955, contracts were let in 11 Western states, for 42 new school bulidings, to cost $14,959,546. Additional projects, numbering 131 schools, were reported in preliminary stages, to cost an estimated $80,216,094.

Dodge reported contracts let in November, 1955, for 503 school buildings, in 37 Eastern states, at a contract value of $143,392,000.

SCHOOL BUSINESS NEWS

★ Washington, D. C. The district commissioners have cut $5 million from the school budget, reducing it to $37.5 million. The cuts were largely in school building appropriations, school maintenance, and employment of new teachers.

★ Arlington, Va. The parent-teachers association has announced its support of a proposed school budget for 1956 calling for $38,966,015. The association called attention to overcrowded classrooms, low salary scale for teachers, personnel shortages, and inadequacy of the previous budget.

★ Lubbock, Tex. The public schools received $24,463.26 last year from the Federal Government for students whose parents are connected with federally controlled areas.

★ Elliottville, N. Y. The school board has set seven cents per mile as the reimbursement rate for privately owned cars used on school business.

★ The school board of Eveleth, Minn., school district has voted to destroy invoices and other records older than 20 years. Ballots older than two years will also be burned.

★ Troy, Pa. The school board has voted to carry insurance against vandalism and public nuisance for a five-year period.

HUGE SCHOOL BUDGET

Supt. Ralph Dailard, of San Diego, Calif., in his latest annual report for 1954–55, calls attention to the fact that the sum of $25,803,043 was budgeted by the board for the 1954–55 school year. Of this amount, $10,315,397 was raised from local property taxes on the basis of a $2.19 tax rate. The remainder was derived chiefly from state aid, federal grants, and cash reserves.

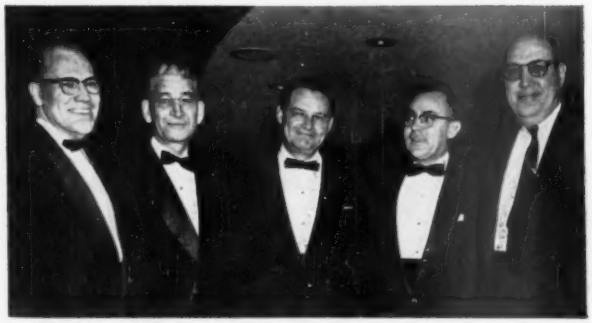
Of the amount budgeted, $23,657,183.92 was expended during the year. The balance consisted of reserves needed to finance operations for the first part of the following fiscal year. The total cost for instruction reached $15,852,784, and for operation of schools, $1,923,897 was expended.

NATIONAL STATISTICS OF IMPORTANCE TO SCHOOLS*

Item	*Date*	*Latest Figure*	*Previous Mo.*
School Building Construction[1]	Nov., 1955	$143,392,000	$162,715,000
School Building Construction[2]	Nov., 1955	$ 14,959,546	$ 54,312,843
Total School Bond Sales[3]	Oct., 1955	$130,082,036	$105,187,608
Latest Price, Twenty Bonds[3]	Dec. 1, 1955	2.52%	2.50%
New Construction Expenditures[4]	Nov., 1955	$245,000,000	$257,000,000
Construction Cost Index[5]	Nov., 1955	618	616
Educational Building, Valuation	Aug., 1955	$106,400,000	$131,100,000
Wholesale Price Index[6]	Nov. 29, 1955	111.0	111.0
U. S. Consumer's Prices[6]	Oct., 1955	114.9	114.9
Population of the U. S.[7]	July 1, 1955	165,284,000	165,250,000

*Compiled December 8, 1955.
[1]Dodge figure for 37 states east of Rocky Mts.
[2]11 states west of Rocky Mts.
[3]Bond Buyer.
[4]Joint estimate, Depts. of Commerce and Labor.
[5]American Appraisal Co., Milwaukee.
[6]U. S. Dept. of Labor.
[7]U. S. Dept. of Commerce.

National School Service Institute Convenes, Elects New Officers



Meeting with the theme "Let's Look at Tomorrow," the National School Service Institute held its 39th annual convention in Chicago, November 28-December 1.

New officers elected for the year are, left to right; *Director*, Clifford Parker, Ideal School Supply Co., Chicago; *President*, Ted L. Bair, Northern School Supply Co., Portland, Ore.; *Secretary*, Clarence McGuire, Hoover Brothers, Kansas City, Mo.; *Treasurer* Loren B. Douthit, Geo. F. Cram Co., Indianapolis, Ind., and *Director*, Charles Close, Arlington Seating Co., Arlington Heights, Ill. Missing from the picture are *First Vice President*, John Brain, Omaha School Supply Co., Omaha, Nebr.; and *Second Vice President*, James W. Campbell, Mississippi School Supply Co., Jackson, Miss.

The Institute, whose membership is composed of leading school supply distributors and manufacturers, met in a closed convention to view new products in the field, to strengthen its objective of "Service to the School Children," and to plan for meeting the needs of public schools for the coming year.

News of Products for the Schools

NEW FURNITURE MATERIAL

An entirely new and different basic material for school furniture has been developed by the Heywood-Wakefield Co., Gardner, Mass. It is a single, homogeneous piece of solid plastic called Heywoodite. This new material is plastic

Indestructible Surface

through and through and is virtually indestructible. It never needs refinishing and even the effects of powerful acids may be buffed away. It is available in five attractive colors.

(For Further Details Circle Index Code 0175)

NEW CONCRETE SEAL

A new concrete sealing product recently placed on the market by Huntington Laboratories, Inc., requires no etching of concrete before use. Called Huntington Concrete Seal, this new product simplifies maintenance of concrete floors by keeping dirt and grease out of the pores. It gives the concrete a surface that is nonslippery, waterproof, and one that prevents dusting.

Floors can be sealed immediately after they have set, and the seal slows up drying so that the floors will cure properly. Colors may be added to the sealing compound if desired, or the sealed surface may be painted. Tests have shown that asphalt tile adheres readily to the new concrete sealer. Also, it does not wrinkle, check, or chip from build-up.

(For Further Details Circle Index Code 0176)

COLORFUL ELECTRIC TYPEWRITERS

Underwood Corp., N. Y., N. Y., has designed an electric typewriter to meet the demands of modern secretaries for an electric typewriter with visual appeal. They recently introduced a new electric model available in a vibrant shade of blue, called Yosemite blue, a delicate blue called Bermuda Blue, and a warm gray called Mist Gray. All of the colors have a nonglare satin finish for maximum eye control.

The new machine also features a color balanced keyboard to distinguish control keys from operational keys, electric margins, and an impression control dial for swift production of up to 20 carbon copies.

(For Further Details Circle Index Code 0177)

ACCURATE SCHOOL TIMER

A most accurate signal clock for schools, patterned after the industrial time switch has been produced by the Lumenite Electronic Co., Chicago 5, Ill. An especially fine feature of the new school program timer is its ease and simplicity of setting or of making changes in schedules. The rim of the 24 hour clock dial is notched for 5 minute intervals. Riders are slipped into these notches with the fingers to arrange the program desired. Signals, as for 1st and 2nd bell can be set as close as 5 minutes apart. Standard signals are "On" for 5 to 7 seconds. This can be arranged on order for as long as 30 seconds, if desired.

The timers are fitted with weekend and holiday cut outs, when ordered. Push button operation signals for alarms are provided with no interference with Timer Cycle.

(For Further Details Circle Index Code 0178)

COMFORTABLE FOLDING CHAIR

A folding chair designed for comfort and safety has been introduced by Samsonite, Denver, Colo. It is a chip-resistant baked enamel chair, with a plywood seat made of 5 ply selected hardwoods that are bonded with water resistant adhesive. Arched tubular steel cross braces on the legs provide strength and rigidity and a form fitting back rest with its bottom edge rolled and a concaved center provides posture control.

(For Further Details Circle Index Code 0179)

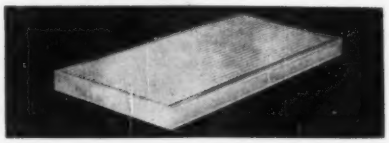
NEW COMBINATION UNIT

Norcor Mfg. Co., Inc., Green Bay, Wis., has announced the addition of a new combination unit to its Modernline of school furniture. This new unit combines the functions of separate desk and chair. It has no pedestal or connecting bars to hamper free foot movement and prevent easy access to the chair. It is available with either a lift lid, steel book box or study top without a book box. The latter can be equipped with a dust-free book basket with both side and front opening.

(For Further Details Circle Index Code 0180)

EXTRA SHALLOW LIGHT FIXTURE

A new, extra shallow fluorescent light fixture designed for flush-to-ceiling mounting has been introduced by Electro Silv-A-King Corp., Chicago, Ill. Called the Surf-A-Lite, it is 3½ in. in height, and available in widths of 12 in., 17 in., and 24 in. It can be mounted in con-



Fluorescent Fixture

tinuous rows in pattern groupings, as well as individually mounted. Although it is extra shallow it has no objectional dark islands on its luminous bottom which features the Electro Silv-A-King ½ in. square "Poly-cube" polystrene louver providing 45° by 45° shielding.

(For Further Details Circle Index Code 0181)

KING-SIZE UTILITY TRUCK

Lakeside Manufacturing Co., Milwaukee, Wis., recently added a new king size utility truck to its present line of stainless steel carts

Heavy Duty Truck

and tray trucks. This new, larger size model is completely constructed of heavy-duty 16 and 20 gauge corrosion-resistant stainless steel. It has three shelves, measuring 21 by 35 in. which will hold loads of food or dishes up to 500 pounds or as many as six utility pans. It also has 5 in. rubber casters with roller-bearing axles, and rubber bumpers on the handles and corners.

(For Further Details Circle Index Code 0182)

CATALOGS & BOOKLETS

Mississippi Glass Co., St. Louis 7, Mo., has prepared a booklet titled "ABC's of Rolled Glass." In this booklet are discussed the various types of rolled glass and the principal functions of each. Free copies of the booklet are available.

(For Convenience Circle Index Code 0183)

A new 28-page illustrated catalog describing its unique system of standardization in building construction has been published by the Luria Engineering Co., Bethlehem, Pa. Entitled "Buildings by Luria," the catalog presents a description of the company's new "F" buildings, a versatile series of flat-roof structures. Brought up to date also is information on its rigid-frame "A" series, offering clear spans of 100 feet and over; its "B" series, center-column buildings where large clear spans are not required; its "C" series, clear spans with crane runways, and its series of standardized hangars and other airfield facilities. Copies of the catalog may be obtained free.

(For Convenience Circle Index Code 0184)

Vogel-Peterson Co., Chicago 9, Ill., recently released several folders describing the Schooline and Checkerette Wardrobe equipment they manufacture. Combination coat rack-chalk boards are shown in the folders along with other coat and hat racks requiring a minimum of space. Copies of the folders are free.

(For Convenience Circle Index Code 0185)

(Continued on page 102)

The easier- the cleaner- the more you save!

● When you figure the cost of clean, sanitary washrooms, it's *work time* that costs much more than materials. And that's where J. I. Holcomb comes in . . . with ways to do the job faster, easier, *better*.

One of those ways is with ZEN, J. I. Holcomb's new triple-action vitreous cleaner. Pleasantly scented, it cleans, sanitizes and deodorizes in one operation—in far less time than you can imagine. Removes toughest stains from toilets and urinals practically on contact, yet does not harm plumbing. Just saturate a swab with a little ZEN and swish—stains, germs and odors all disappear *right now*. A little ZEN goes a long, long way. It's non-fuming, won't sting the skin.

See it to believe it! Ask your Holcombman for a 30-second demonstration. And while you're at it, ask to see the complete lineup of J. I. Holcomb Scientific Cleaning Materials to make washroom maintenance faster, pleasanter—and less expensive than ever before.

J. I. HOLCOMB MANUFACTURING COMPANY

Scientific Cleaning Materials

1601 BARTH AVENUE, INDIANAPOLIS, INDIANA • NEW YORK • DALLAS • LOS ANGELES

RIZ—a powerful disinfectant for floors, rest rooms, toilets, shower rooms. Dilution ratio: 320 to 1. May be mopped or sprayed.

FRESHETTES—long-lasting fragrant blocks used in odorator cages or direct in urinals. Insoluble in water.

DE-ODOR MIST—handy aerosol spray that destroys, not masks, odors. One "bomb" gives up to 450 squirts.

SUPREME HAND SOAP—fast-lathering, soothing liquid soap containing Lanolin. Rinses freely—a little goes a long way.

News of Products . . .

(Continued from page 100)

A catalog displaying a wide range of physical fitness apparatus and corrective therapy equipment may be obtained from Fred Medart Products, Inc., St. Louis 18, Mo. Gymnasium lockers, seats, scoreboards, and various other pieces of equipment are also shown in this catalog. Copies are available on request.

(For Convenience Circle Index Code 0186)

Heating in schools, institutions, and public buildings is discussed in a new 12-page brochure prepared by The Will-Burt Co., Orrville, Ohio. Titled, "The Logic of Stoker Heating," this brochure gives reasons for using stoker-fed coal heat and provides testimonials and photos of schools using Will-Burt stokers. Copies are free.

(For Convenience Circle Index Code 0187)

"The Educational Laboratory" is the title of a 16-page booklet of laboratory equipment prepared by the Metalab Equipment Corp., Hicksville, L. I., N. Y. Sectional units, science desks, tables and instructor's desks are pictured and described in this booklet which may be obtained free.

(For Convenience Circle Index Code 0188)

Detailed information on many types of Cyclone fences is given in a new catalog recently released by the American Steel & Wire division of the United States Steel Corporation, Waukegan, Ill. Also included in this catalog are a few of the other Cyclone wire products and some examples of fence installation made by Cyclone. Copies are free.

(For Convenience Circle Index Code 0189)

An analysis of the four basic objective test forms has been done by Ditto Inc., Chicago 12, Ill., in a recently released booklet. This booklet titled "How to Prepare and Use Objective Tests" describes the completion, multiple choice, true-false, and matching tests. It gives their variations with suggestions for framing questions, and administering and scoring the tests. Free copies of the booklet are obtainable.

(For Convenience Circle Index Code 0190)

A 16-page booklet of school furniture and auditorium seating is available from the Irwin Seating Co., Grand Rapids, Mich. Various desks, tables, and chairs are pictured and described therein. Copies are free.

(For Convenience Circle Index Code 0191)

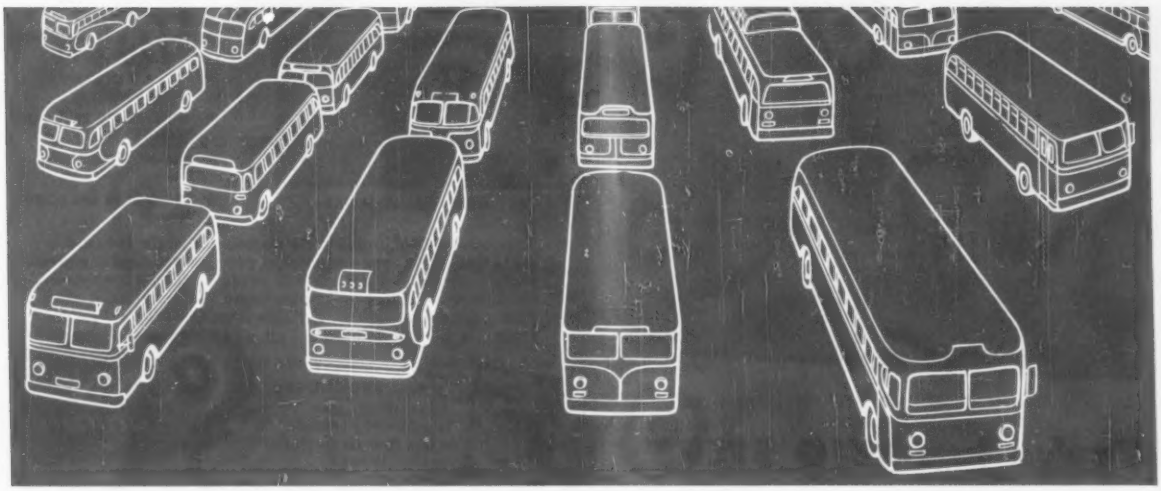
MANUFACTURERS' NEWS

Schieber Manufacturing Co., Detroit, originators of In-Wall folding tables and benches, will celebrate, this year, the 25th anniversary of their first installation. Known primarily for In-Wall equipment, they plan now to expand into other lines of school equipment and have introduced a new lightweight electric-hydraulic operated folding partition for gymnasiums.

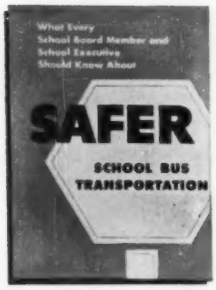
T. J. Coleman, general manager of the Silicones department of **Linde Air Products Co.**, New York, N. Y., recently told of the growing popularity of Silicones, a new family of chemicals. He related how sales of Silicones have been expanding in all directions; and how industry is using them for many applications, including electrical insulation, mechanical rubber parts, mold release agents, damping and hydraulic fluids, defoaming agents, molding compounds, and bonding agents.

AIR BRAKES

STANDARD EQUIPMENT ON VIRTUALLY EVERY COMMERCIAL BUS IN THE NATION



THE LOGICAL CHOICE FOR YOUR SCHOOL BUSES, TOO!



WRITE FOR FREE INFORMATIVE BOOKLET

Here's the complete story on how much *Air Brakes* can contribute to school bus safety. Write to the factory, today.

WHY AIR BRAKES? The answer, of course, can be stated in one word—*safety*. Look at it this way. The greatest assurance of safety in school bus operation is a braking system powerful and dependable enough to meet any emergency. *Air Brakes* deliver more power, faster and surer than any other type of brakes available. *Proof of this can be found in the fact that virtually all of the 102,000 commercial buses operating in 1953 were Air Brake equipped.* Commercial bus operators can't take chances on passenger safety—they demand the world's safest power-to-stop!

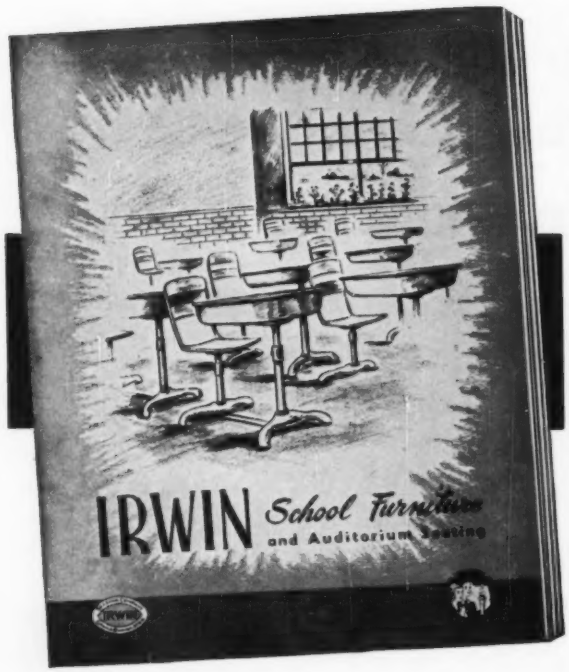
HOW TO GET THEM. It's simple. First, if you are buying new buses and are asking for competitive bids, insist that *all* bids submitted include *Air Brake* equipment. This way, the buses you ultimately choose will come from the factory *Air Brake* equipped. Secondly, you can modernize your present buses with handy field conversion kits—there's one designed for every make and model bus. Just call your Bendix-Westinghouse Distributor and he will make all arrangements—for easy reference you'll find him listed in the yellow pages of your telephone directory.

THE BEST BRAKE IS AIR . . . THE BEST AIR BRAKE IS

Bendix-Westinghouse

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY
General Offices & Factory—Elyria, Ohio
Branches—Berkeley, California and Oklahoma City, Oklahoma

BENDIX-WESTINGHOUSE AIR BRAKES REG. U.S. PAT. OFF.



You're just TWO STEPS from the wisest possible solution to your SEATING PROBLEMS!

First, write for your free copy of the IRWIN catalog. You'll find it describes a complete range of versatile, practical, exceptionally well made seating for all classroom and auditorium requirements — at prices that make them very sound values.

Second, consult us on the specific seating problems which may be facing you. Our thoroughly experienced engineering staff will be happy to assist you to the very best possible solution. Why not take the first step, right now, toward making your seating budget do maximum duty, by writing for your free copy of the IRWIN catalog?

SEATING COMPANY
IRWIN
GRAND RAPIDS, MICH.

FURNISH THE FINEST FOR YOUR SCHOOL

ALL-NEW *Classic* MODEL

Only CONN *Organs Offer All This*

- ★ MORE REALISTIC ORGAN TONE
- ★ TRADITIONAL ORGAN STYLING
- ★ TWO FULL 61-NOTE INDEPENDENT MANUALS
- ★ FULL A.G.O. 32-NOTE PEDAL BOARD
- ★ WIDE RANGE TRUE SOLO "VOICES"
- ★ INSTANT RESPONSE AS DESIRED
- ★ PRICED TO FIT ANY SCHOOL BUDGET

This *newest* CONN organ is the masterpiece of the industry . . . far surpassing in tone and musical performance anything previously offered. See your CONN organ dealer for *comparative* demonstration before buying any organ. No other organ offers your school so *much!* C. G. Conn Ltd., ORGAN DIVISION, Dept. 131 Elkhart, Indiana

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All about this great new CONN CLASSIC organ. Also ask for *free booklet,* "How to Choose an Organ."

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HALF TONE and LINE ETCHINGS COLOR PROCESS } **premier**

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READER'S SERVICE SECTION

INDEX TO SCHOOL EQUIPMENT

The index and digest of advertisements below will help you obtain free information, catalogs, and product literature from the advertisers and companies listed in the new products section. Merely encircle the code number assigned to each firm in the request form below, clip the form and mail it to THE AMERICAN SCHOOL BOARD JOURNAL. Your request will receive prompt attention.

(Continued on next page)

TEAR ALONG PERFORATED LINE. POSTAGE PAID FOR CONVENIENCE.

THE AMERICAN SCHOOL BOARD JOURNAL January, 1956
400 North Broadway, Milwaukee 1, Wis.

Please ask the manufacturers, whose code numbers I have encircled, to send me free information, catalogs or product literature as mentioned in this issue of the JOURNAL.

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NEWS OF PRODUCTS FOR THE SCHOOLS

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Index to School Equipment—continued

NEWS OF PRODUCTS FOR THE SCHOOLS

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AMERICAN SCHOOL BOARD JOURNAL

P.O. Box No. 2068

MILWAUKEE 1, WISCONSIN

Medart

telescopic gym seats*

better gymnasiums deserve better seating

MORE SAFETY—Four double *vertical* uprights per row put the spectator load directly on the floor, not the casters or walls.

MORE STRENGTH—Self-supporting, free-standing steel understructure does not depend on wood members for strength.

MORE ROOM—22″ or 24″ row depths, plus under-seat clearance provides more toe, heel and leg room.

MORE VISIBILITY—10½″ or 11½″ row rise makes seeing easier.

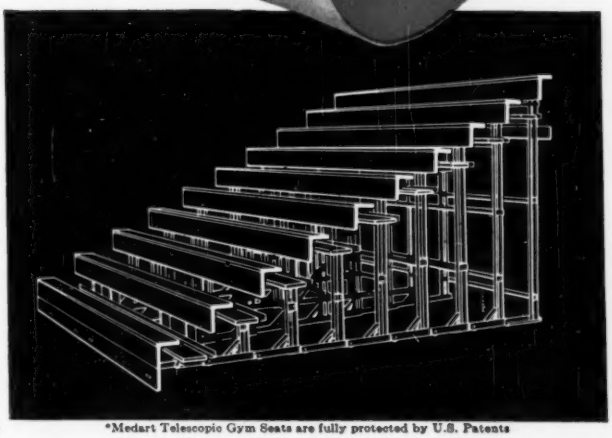
LESS EFFORT—Free-floating, interlocked roller housings and supports under seats make Medart Seats easiest of all to open and close.

Write for NEW catalog

SEE OUR CATALOG IN SWEET'S

SPECIFY the best, then INSIST on it!

FRED MEDART PRODUCTS CO., INC., 3578 DEKALB, ST. LOUIS 18, MO.



*Medart Telescopic Gym Seats are fully protected by U.S. Patents

Sexton Menu marvels

...how much PROTEIN?

CHICKEN FRICASSEE	13.9%
CHILI WITH BEANS	9.4%
CHILI WITHOUT BEANS	10.5%
BEEF STEW	7.3%
BEEF IN GRAVY	20.1%
BEEF HASH	9.9%
CHICKEN A LA KING	10.5%
CORNED BEEF HASH	9.4%
BEEF IN BARBEQUE SAUCE	19.4%

CALORIES NEEDED EVERY DAY

60% from starch and sugar
25% to 30% from fat
10% to 12% from protein

JOHN SEXTON & CO.,
CHICAGO. 1955